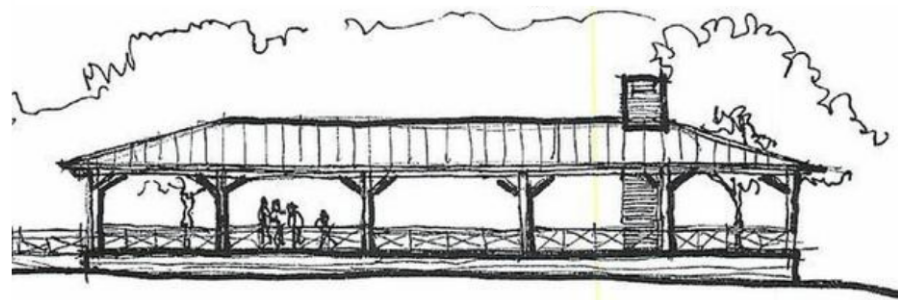


Feasibility Study for a Pavilion at the Duke Park Bathhouse

10/28/14

Owner: City of Durham

Architect: RND Architects PA



ROUGHTON • NICKELSON • DE LUCA
Architects, PA

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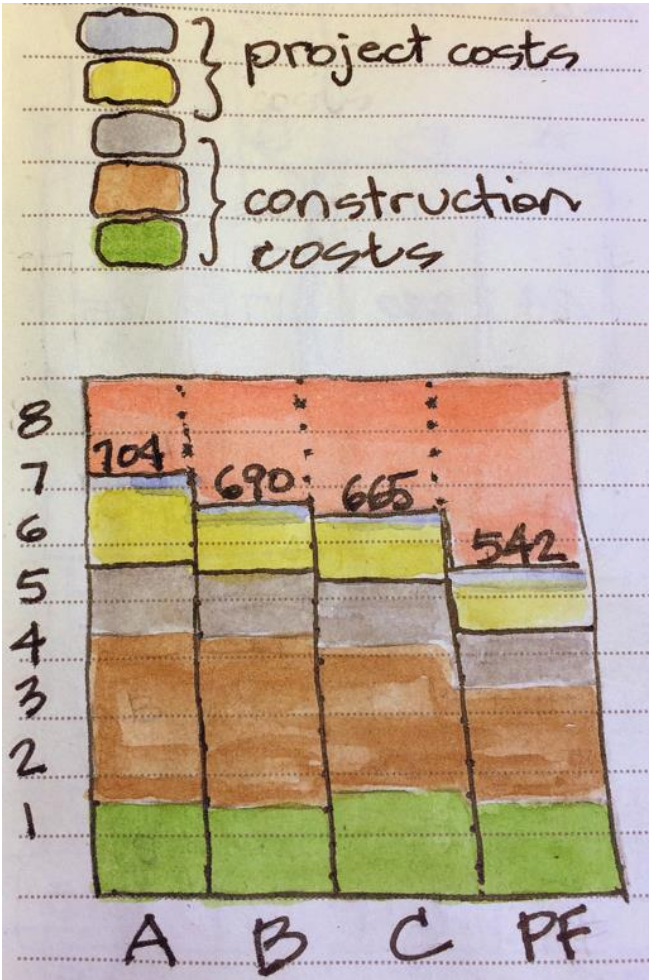
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Part I – Narrative Section



Thumbnail Costs Comparison Graph
(rounded, in thousands)

Executive Summary

In June 2014 the City of Durham engaged the services of Roughton Nickelson DeLuca Architects PA (RND) to complete a feasibility study for a pavilion to replace the closed Duke Park bathhouse. The purpose of this feasibility study is to complete an investigation of the current bathhouse site to determine the suitability of the site for construction of a new pavilion and provide opinion of project costs for three schematic designs.

RND led the professional design team, which included Coulter Jewell Thames PA (Landscape Architecture and Civil Engineering), Gardner & McDaniel, PA (Structural Engineering) and Edmondson Engineers, PA (Plumbing, Mechanical and Electrical Engineering).

To verify findings of the 2009 Duke Park Bathhouse Assessment Report and to determine how much, if any, of the bathhouse structure could be used in a new pavilion structure to accommodate between 50 and 90 persons, the design team re-visited the site, investigated and re-assessed the existing bathhouse structure. The team also reviewed the existing site and utilities surrounding the existing bathhouse structure to determine the scope of improvements needed to support a new pavilion.

In addition to verifying the findings of the 2009 report, the RND Architects researched the history and cultural implications of the bathhouse site at Duke Park. With much expressed public interest in Duke Park improvements, the design team assisted the City in conducting a public meeting and information sharing forum under the title “Pavilion Ideas Forum” to gather input from the local neighborhood and the general public. The entire process and resulting documentation of this feasibility study has been made publically available through the home page on the Durham Parks and Recreation website:

<http://durhamnc.gov/ich/op/prd/Pages/Home.aspx>

Finally, the Thumbnail Costs Comparison graphic represents probable budgets for three pavilion concepts as well as a probable cost comparison for the installation of a stand-alone picnic shelter and toilet building.

A. History of the Duke Park Bathhouse

The bathhouse was constructed approximately 80 years ago in Duke Park. In its first 60 years –from approximately 1934 to 1994--the bathhouse served its initial purpose for changing, showering, and pool administration for a seasonally open concrete swimming pool. For the last 20 years--from 1994 to 2014--the bathhouse has had a more limited use for some City storage and, for a short period, because there were no other restrooms in the park, as the site of the park’s public toilet facilities. However, during these mature years the bathhouse’s physical presence has functioned as a backdrop to festivals and casual recreational activities in the park. Once the swimming pool was demolished and transformed to a grassy field, the bathhouse has become a kind of architectural relic that is seen by some in the community as an important marker of the past. (See **Appendix H** – excerpts from the City of Durham Department of Parks and Recreation Report: Historical Resources Management Plan, July 2012.) For these and other reasons, the memory of this structure is important to the community.

Bathhouse Historic Status

In 1994 the Duke Park Neighborhood Association formed the non-profit Duke Park Preservation Initiative, in part to pursue open space land preservation efforts and also to possibly adapt and re-purpose the bathhouse structure as a community center. Though the structure is old, it is not legally protected by local or national preservation designations. According to the DPR Historic Resources Management Report (See **Appendix H**), the bathhouse is not located in a historic district, and it has not been designated as historically significant or a historic landmark. It is not on the National Register of Historic Places. The building and pool are reported to have been constructed with funds from Depression era programs, such as the Works Progress Administration and the Emergency Relief Administration of North Carolina. The bathhouse plan layout appears similar in plan layout and concept to other bathhouse types of the period (see **Appendix H**- Department of the Interior – Office of National Parks, Buildings and Reservations- State Park Emergency Conservation Work – Bath Houses). While its hipped-roof, clapboard sided, and engaged porch elements relate to period revival style houses of the East Durham- Duke Park Historic District just to the south of the park, the structure is different in style than its immediate neighbors to the west along Acadia Street, which may be described as transitional, contemporary, brick homes with gable roofs.

Duke Park

In the late 19th century, the land now known as Duke Park was farm land, a far reach from downtown Durham before the prevalence of private automobiles. As early as 1909, the hilly farm land was preserved for a future park, but not without early objections from neighbors. Accelerated city growth impacts on city aesthetics, health and morals, caught the attention of many civic and progressive groups in the late 19th century. Perhaps following a lead in park beautification efforts of emerging urban

centers, the Durham Junior League requested Brodie Duke to donate the hilly land of Duke Park, which was likely deemed less suitable for development.

As private automobile ownership hastened the demand for a street network and private single family houses, the land between the park and downtown Durham quickly transformed into a district of period revival style single family houses characteristic of 1920’s and 1930’s suburban styles. These include the Colonial Revival, Tudor and Bungalow types well documented in Historic Neighborhood District application (See excerpts in **Appendix H**) and other sources.

While the houses were primarily set on carefully platted lots along a rectilinear street grid, Frederic Law Olmsted’s influence on park planning may have influenced the southern termination of Duke Park, which is a characteristically curvy section of Knox Street. Interrupting a rectilinear street grid to demarcate a hilly park can be seen as a terminating point of suburban expansion and the beginning of a preserved park space. However, the park’s sharply truncated north boundary is a product of modern highway planning from the interstate highway project of the early 1960’s. In this sense, the parks’ boundaries may be seen as book ended between 19th century landscape Romanticism and mid-century Modern planning principals.

Eventually, the earlier bungalow styles of the neighborhood development would give way to a greater variety of architectural styles as single family houses, duplexes, and apartments were built on the remaining vacant land tracts west of the park. However, significant areas in the Ellerbee Creek flood plain remain undeveloped open space on the west side of the neighborhood. On-going awareness of the neighborhood’s natural areas and terrain remain important to the neighborhood as evidenced by the growing popularity of an annual pageant, part of the Beaver Queen Festival, held annually in the Duke Park, which raises funds for watershed protection.

Currently, the bathhouse area functions as a backdrop to the bowl-shaped (former pool site) terrain on its east side. As home to the Beaver Queen festival activities and other gatherings, the bathhouse’s east and west porches provide some limited opportunity for gathering and storage associated with the pageant. However, its current shuttered state connotes vacancy and abandonment. The building has been troubled by vandalism. Without interior access, the building functions as an object in the park to walk around. With its aged wood siding painted brown and its roof forms visually intact, it is an interesting object. Its formal language, including the bathhouse’s hipped roof, protruding porches and rooftop cupolas, contain references to the park and neighborhood. However, the black metal and concrete stair additions, the closed louvers and the deteriorated doors, read as architectural patches of convenience to a structure with an undetermined status. In recent years, neighbors have vocalized a variety of ideas for alternative uses.

Bathhouse

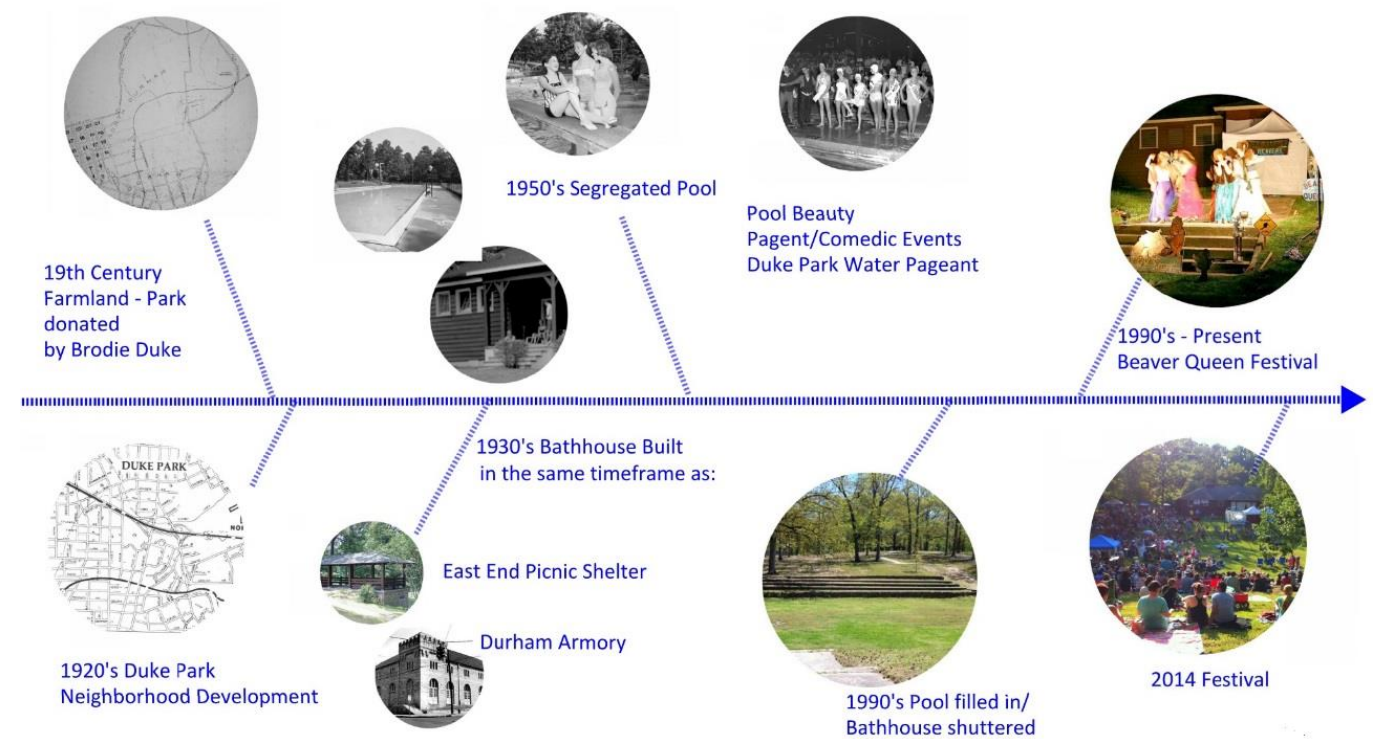


Duke Park and its two remaining park structures of the early 20th century capture an insight into the way Durham's population saw its potential. Today, in the early 21st century, the insight takes into account of re-development, historical revision, and active use. The neighborhood has grown and is more than any one element. So, replacement ideas recognize the value of the Olmsted type planning principals of views, vistas, subordination of details to a whole, and a 'genius of the place,' as well as the economy and durability of Works Progress Administration type elemental materials of stone and wood.

Seen in terms of its original purpose, the bathhouse was created as an interior covered area that provided privacy to change from 'street wear' to 'bathing suits,' a place to shower and temporarily store personal items, and an office to administer pool activities. The swimming pool area – conceived only as a seasonal recreational amenity – was fenced, therefore, not accessible except through the bathhouse during warm months of the year.

That was the case until 1990, when the 'pool area' became a field and was 'open' year round, but the bathhouse building was closed and not accessible to the public.

Though the bathhouse structure and Duke Park picnic shelter structures buildings were conceived and built in the early 20th century and may reflect Frederic Law Olmstead and Works Progress Administration park structure influences, neither is currently designated as an official historic preservation site. The picnic shelter is maintained, available for public use, and appears to be in relatively good condition. And while this report is based on a replacement of the bathhouse structure, it seeks to identify ways to recognize this history in a forward going manner according to the Durham Parks and Recreation Historic Resources Management Plan of 2012, which notes that necessarily parks change over time and states that park planning and uses take into account a broader view: "The City park system often offers valuable insights into the mind of its population during the periods in which parks were created or renovated."



C. Project Process

a. Analysis of the Existing Building

The Duke Park Bathhouse Assessment Report dated December 2009 determined that the existing bathhouse was in poor condition and any future use of the existing structure would require, at a minimum, that the structure be fully deconstructed and rebuilt with mostly new materials.

In April of 2014, the original design team revisited the site and reassessed the condition of the existing bathhouse and site. The design team found that the building had further deteriorated and the findings of 2009 Duke Park Bathhouse Assessment Report remain valid. The existing bathhouse does not meet minimum building code requirements and, if it is to be used for any purpose, it needs to be replaced with a new structure or completely deconstructed and rebuilt.

Below is an updated assessment on the condition of the building with some assessment of the possibilities of reusing some of the materials in a new structure.

Foundation: The foundation is comprised of painted clay brick piers supporting the concrete floor system and concrete masonry block infill. It appears the brick piers were original and the concrete block was installed at a later date. The masonry foundation system continues to settle and is in poor condition. None of the foundations materials could be reused as structure support for a new structure. At great expense, the clay brick could be cleaned and reused for decorative purposes, however, the brick has little to no historical value.

Floor system: The elevated concrete floor with wood timbers system has failed. The wood girders have rotted away leaving the concrete floor unsupported. There are no materials associated with the floor system that could be reused.

Exterior Walls: The exterior walls are simple 2x4 construction with 1x10 lap siding on the exterior and a mix of various boards and plywood on the interior. The 2x4 framing shows signs of rot and insect damage. Since the lumber is ungraded, it cannot be reused for structural purposes. The exterior 1 inch thick siding suffers from extensive wood rot. However, there are a few areas of siding in fair condition. These portions of the siding could be salvaged and reused. The painted siding likely contains lead paint which needs to be properly removed before reuse.

Roof Framing and Decking: The roof framing consists of site built roof trusses and rafters with 1x6 wood decking. Much of the wood is sound, however, since the lumber is ungraded, it cannot be reused for structural purposes.

Windows and Doors: The original hopper style windows were long ago replaced with framed openings with non-operable horizontal wood louvers and insect screens. The wood is in fair to poor condition mainly due to rot. Some of the windows could potentially be reused. The painted surfaces likely contain lead paint, which needs to be properly removed before reuse. The exterior doors are likely not original to the building. The doors have been extensively modified over the years to accommodate building settlement. We do not recommend reuse of the existing doors.

Interior Walls and Finishes: The interior walls are simple 2x4 wood framing with board and plywood covering. The ceiling is a grid and acoustic tile system with a plywood ceiling above. None of the interior materials are suitable for reuse.

It remains the recommendation of RND Architects and our professional consultants that none of the existing bathhouse materials be used for any structural purposes in a new pavilion. The most cost effective reuse materials are the wood siding members and wood framed louver openings. Employing deconstruction specialists in the demolition process may yield enough material for decorative siding elements in exterior walls supported by new masonry construction. Any unused materials, could be recycled. Additionally, the Department of Parks and Recreation is currently working with deconstruction specialists on the potential demolition of the “caretakers’ house” north of the bathhouse.

Recycling: If the building were to be deconstructed, some of the materials could be recycled to reduce landfill waste. The building contains a small amount of scrap metal (plumbing pipes, rebar and some odd steel columns). The wood could be sorted and the solid wood reused where possible or donated. The concrete and masonry could be crushed for uses as backfill material. The roofing, the rotten wood, and some miscellaneous materials would end up in the landfill.

C. Project Process

b. Analysis of the Site

There are many site factors that broadly contribute to understanding and informing on the shape and use of a new pavilion at the bathhouse location. These include the history of the park, its relation to the surrounding neighborhood, and its context within the network of parks managed by the City of Durham for all public visitors. Compared to other city parks, however, the bathhouse footprint is uniquely situated in the park on a hill with generous views over a semi-terraced depressed landform. In a promontory position, a replacement structure with landscaped terraces, toilet amenities and covered areas for picnics, requires special design consideration, because it is very visible inside and outside of the park. The basic uses common to other picnic shelters include a covered area for picnic tables for groups and a place under the roof for presentations. Some shelters have toilet rooms integrated within the shelter, but none also require a stage oriented toward a former pool site on a gently sloping terrace, and several terraces and or porches variously covered by the pavilion's overhang or the existing tree canopy. Most recognize the given situation of the landform is a kind of informal amphitheater. Therefore, with imagination and efficient leveraging of modest building and landscape features, the basic functional requirements of a picnic shelter and site work can be used to augment and intensify the inherent beauty and uses of the site.

For any use, a new pavilion must meet minimal ICC A117.1-2009 and the North Carolina Accessibility Code requirements. Therefore, the existing designated accessible parking space and route to the bathhouse location must be modified. This includes new accessible parking spaces and sidewalks to the new uses including required ADA compliant toilet rooms.

Beyond the immediate site, many existing sidewalks and concrete steps that do not meet current accessibility standards. It is recommended that these walks be modified to meet current standards; however, these routes are not needed to access the proposed pavilion and, thus, are not included in this scope of work.

Keeping in mind the broader framework, the proposed pavilion can open the area of the existing bathhouse footprint and its immediate adjacent relatively level ground to more visitors while referencing the past scale and architectural features of the bathhouse and its early history. This includes situating the new pavilion roughly centered on the bathhouse footprint and creating a roof form that continues the visual dialogue between neighborhood and park structure. Additionally, locating porches and terraces of the new pavilion structure with consideration of views, vistas and screens will maintain the charm of a residential scale structure with a community use.

The existing abandoned power pole located south of the bathhouse can be removed. A new power service should be located closer to the power source at the north to feed the new building's electrical requirements.

Stormwater Impact

Based on Stantec Consulting Services, Inc.'s calculations for the 2013 Site Improvements to Duke Park, the proposed pavilion project can disturb up to 7,988 sf before triggering the requirement to treat storm water (see Appendix SN). If the project disturbance exceeds the cumulative quarter acre limit, the project will need to treat for solids and nutrient removal for all the disturbance since 2006 (not just the amount over the quarter acre threshold). Mitigation can be done in a device such as a wetland or bio-retention area. No matter what work is done on site, the site plan submittal and review process will be required to include storm water studies and analysis. It is likely the scope of this project would not trigger the storm water treatment requirement.

Site Design - Terminated Axis & Visual Clues

In landscape architecture terms, a terminated axis is an important feature that ends or 'terminates' a view. Where the east end of Englewood Avenue tees into Acadia Street, the existing bathhouse terminates the view axis from the neighborhood toward the north end of Duke Park. From Englewood Avenue the bathhouse serves as a locating point of this area of Duke Park, indicating a public building site and area of interest. While the building resembles a residence—with its west porch, hipped roof, wood doors and square wood trimmed openings, it clearly reads as a significant park structure in a large neighborhood park. Since their large open spaces and various pathways from public sidewalks and streets invite in visitors, parks in neighborhoods can convey community welcoming and a sense of gathering. In scale and clearly identifying use clues, such as picnic tables, seat walls, grills, and open shelters, parks areas are in striking contrast to private lots that have many cues of 'welcome by invitation only,' such as privacy and security fencing, relative smaller sized recreation areas, and intimately scaled outdoor furniture. For many years, the bathhouse and pool visually connected the idea of seasonal recreation—the promise of swimming in the summer months. And then for almost as many additional years, the bathhouse has appeared closed, but the former pool area open. So, visually, the idea was somewhat reversed. The bathhouse building screened and denied visual access from the neighborhood into the north end of the site, but one could quickly discover the open field, terracing and areas around the bathhouse.

In recasting the bathhouse from a building with an interior-purpose (of dressing, showering and temporary clothes storage) into a pavilion with an exterior-purpose, a contemporary,

‘fuller access’ can be achieved. This includes access for people of differing physical abilities as well increased visual access through the structure to the activities in the northern section of the park. By using the required toilet rooms and small landscape walls as cladded-screens at strategic locations, the pavilion structure can signify both the physical memory of the bathhouse as well as a significant place of useful public activities in the park. These elements, then, may be considered a means to create access to the park’s history. When the pavilion is not rented, its position on the hill and its architecture may silently convey an ongoing physical relationship between historical and future relationships between Duke Park and the private houses that surround it.

Solar Condition

The sun rises east over the southern end of the park on Knox Street, and casts late afternoon shadows on the side towards the former pool. The north end of the bathhouse is heavily shaded by dense pine trees. The large deciduous trees located to the south of the site provide cooling shade during the summer and allow sun to warm the site in the winter. A new pavilion will create various zones of sun and shade to complement the existing tree canopy that is planned to remain.

Site Observations

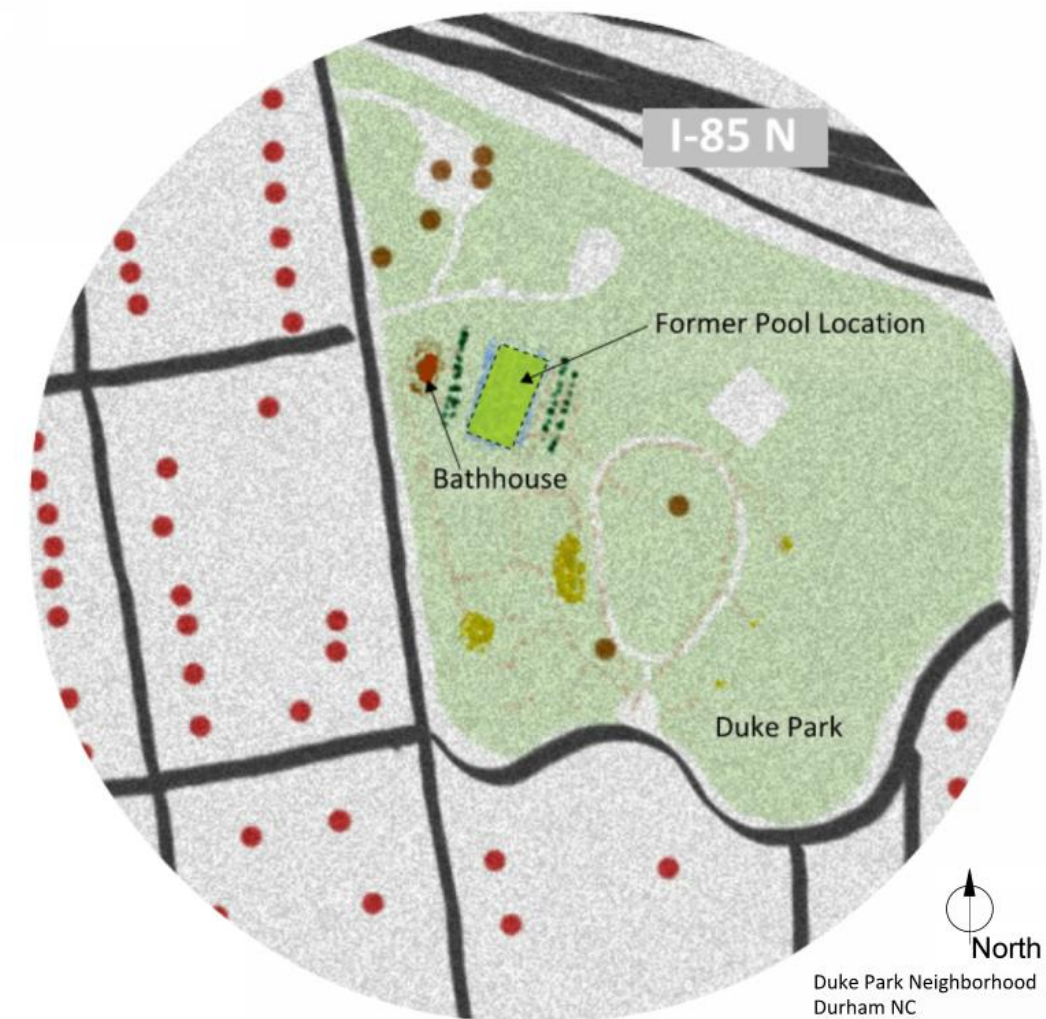
The bathhouse footprint is the orienting basis for the proposed pavilion. It is located on a modest promontory toward the north end of Duke Park’s rolling terrain. The existing bathhouse structure mediates views between the Duke Park neighborhood on the west and the tree covered park to the south and east. The former pool area was filled and planted with grass. The hill side opposite the bathhouse on the east continues to have stepped terraces with stone walls built into the grade creating an amphitheater type of seating overlooking the field.

North – Features

Immediately north of the bathhouse is a cluster of mature pine and oak trees. Just beyond these, a service road connects Acadia Street to a parking area northwest of the tennis courts. This lot is currently divided from the park with a metal fence. A cluster of buildings once used by the Department of Parks & Recreation for maintenance activities remain north of the service drive. East of the former maintenance buildings is a paved parking area.

South - Features

There are existing designated accessible parking spaces located south of the bathhouse. These do not meet current accessibility code. Additionally, existing sidewalks between the bathhouse and the designated accessible parking spaces do not meet current accessibility code standards. These perpendicular spaces provide the primary parking for Duke Park visitors arriving by car. There are also parallel spaces along the curved Knox Street at the south end of the park, but these parking spaces exceed the code specified maximum distance from parking space to bathhouse area of use.



C. Project Process

c. Precedents

While a replacement structure for the bathhouse can be envisioned many ways, it is useful to reference local precedents of park shelters that function in some analogous way. The following notes and observations are intended to provide a set of reference points for establishing critical architectural considerations for a new pavilion. See Appendix P of this report for additional information and on the Durham Parks and Recreation website.

Of the examples documented in this report, seven are owned and managed by Durham Parks and Recreation. Two other nearby examples –the Ross Shelter in Duke Forest and the Eno River State Park shelter, provide additional reference points that can be easily accessed by the public. From a user perspective, it is important to visit a place to appreciate the various qualities of a shelter. Often users will be organizing a birthday party or reunion and will need to understand the ease of access to a shelter and to assess the size and feel for their particular purpose. This is true for most event organizers and groups planning for a performance in the park. From the City’s management perspective, it is useful to compare specific qualities of a proposed pavilion to existing park structures in the Durham Parks system. Fortunately, Durham has a great variety of interesting sites to visit and compare.

Best precedent - the park itself, the bathhouse and the Duke Park picnic shelter

Duke Park is unique among City parks in some respects. Its history, topography and location merit architectural consideration for any grounds improvement. Therefore, the most relevant examples for a replacement structure are found on the park grounds and include the current bathhouse and the picnic shelter. The bathhouse location is set on a hill in a relatively open area of the park. The location is visible from the neighborhood mostly along Acadia Street. From inside the park, the bathhouse location is often eclipsed by the mature tree canopy of the hillside. However, some portion of the structure is visible from most locations within the park.

Duke Park Bathhouse - Interior

The bathhouse interior layout (**see Appendix P**) includes a series of wood partitions that separate dressing areas between the sexes and provides privacy within an open plan. A service counter on the west entrance appears to be an alteration that occurred sometime after the 1940s image depicting a short man in a dark suit and a tall woman in a floral dress. Recent photos of the interior (see appendix – precedents section) show the service counters, bench seating, and natural daylighting provided by the louvered openings. The sense of a camp-like shelter and unconditioned enclosure is disrupted partially by a later addition of dropped acoustical tile ceilings and unorganized storage of festival materials. Though the building has been vacant for many years the louver openings have allowed the interior to “breathe” and not trap moisture. Elements of

square openings in privacy walls, low partitions that allow light to flow through the structure, a common ceiling, daylighting, service counters and porches provide a palette of references for the replacement structure. Though the main part of the building has long been closed, toilet rooms on the south and north side of the buildings remained open to the public, though there was limited signage directing the public to the rooms and the rooms were not accessible per American with Disabilities Act guidelines. Today those toilet rooms are closed and have been replaced with a new building further south in the park.

Duke Park Picnic Shelter

The Duke Park picnic shelter appears well-worn yet always open. It is a center of a variety of park activities, including picnics, music performances, and neighborhood gatherings. With only one long table, it is limited in the number of people who can gather inside, but many can gather around it. Like the bathhouse structure, the picnic shelter appears solid and rooted to its place. Unlike the bathhouse structure, the picnic shelter is more hut-like and creates a low canopy under the high canopy provided by mature park trees. The Duke Park shelter is not accessible as the nearest accessible parking spaces exceed code required distances and the walkway is not accessible.

Ross Shelter

The Bobby Hunter Ross, Jr. Memorial Shelter is located in Duke Forest approximately one mile west of the 751/Erwin Road roundabout. It has a 50-75 person capacity and is basically a picnic shelter served by forest trails. It has simple detailing on timber columns that are set on stone plinths and a concrete slab. The shelter is anchored by a large stone fireplace located at one end of the shelter. The plywood and batten ceiling conceals common wood trusses and creates an interior ‘outdoor room’ atmosphere. The shelter is at the head of the Shepherd Nature trail. It does not have toilets, electricity, or running water.

Forest Hills Shelter

The Forest Hills picnic shelter is set on low expanse of park land behind the 1930s Forest Hills Clubhouse. View of the picnic structure is partially obscured from University Drive by the Colonial Revival clubhouse. Like Duke Park, the land was deemed largely unsuitable for development. It was formerly a golf course and eventually donated to the City by John Sprunt Hill in 1938. The shelter can accommodate large gatherings up to 120 people. The shelter has two toilet rooms under the shelter’s large hovering roof. The toilet rooms also serve a small gazebo and outdoor playgrounds north of the structure.

Wrightwood Park Shelter

The Wrightwood Park shelter has the neighborhood park qualities of being a small structure in a portion of a park tucked on a hill midway between residential streets. It is a shelter of economic form that houses two toilet rooms, a storage closet, and an open area with a picnic table facing a large stone fireplace. Unlike most shelters, it has a flat

roof and a combination of concrete block and natural stone masonry elements. It is at once, a bit spooky and intriguingly intimate. This structure’s single user toilet room doors are oriented away from its main “outdoor room”.

Eno River State Park Shelter

This large shelter is nestled in the woods at Few’s Ford in the Eno River State Park. Toilet facilities are provided by a separate toilet building located out of sight of the shelter. The shelter is built of heavy timber in colors that blend with the forest setting. The exposed rafters and large vented roof provide the typical state park architectural expression of rustic simplicity and repetitive members with exposed galvanized metal connectors. The gable roof is louvered on one end and flanked by a stone fireplace on the end opposite the sidewalk entry path.

Orchard Park Shelter

It is easy to drive past this simply ornamented park shelter in a park just south of the grand Hill House on South Duke Street. The simple timber columns and hipped roof are detailed with chamfered built up posts and railings. The economical common wood rafters are exposed, but the rectangular shelter plan is centered formally before a larger garden to its south.

East End Park Shelter

The shelter is located west of S. Alston Avenue on Mallard Avenue. Though the neighborhood is industrial, the quiet little structure is tucked under mature hardwoods and provides spectator views to basketball courts and play fields north of the structure. Though the stone wall openings that originally provided access to toilet rooms, concession and storage areas have been filled in with stone, the little structure continues to have a pavilion quality reminiscent of the 19th Century park structures. From a historic photograph, the north side of the structure include a wood pergola. The materials palette includes a low sloped hipped roof, timber frame members of painted wood, and stone masonry.

Size/Capacity vs. Sense of Place

Most parks have picnic shelters, but not every park’s’ shelter defines or enhances its place. From a service standpoint, the Durham Parks’ system provides an amazing array of recreational services. The distribution of picnic shelters around the city makes access easy and supports a multitude of gatherings and activities. Some of the parks’ picnic shelters were clearly selected from a standard catalog and some were custom built. The custom built shelters tend to more uniquely define a park place than pre-fabricated designs, because their forms result from a recognition of a particular place’s attributes.

Part of the fitting character of the Duke Park picnic shelter is found in how its natural stone and wood materials mimic landscape materials of tree and rock. Similarly, the East End Picnic Shelter’s stone base is literally built into the grade that separates its Mallard Avenue entrance from the fields to its north. The small Wrightwood Park shelter is atypically flat roofed, and has an intimate outdoor room composed with heavy timber framing, stone

walls an integrated toilet amenities of concrete masonry units. Its unique park shelter architecture differentiates it from other parks.

The Ross Shelter in Duke Forest and the Forest Hills Park shelters have larger seating capacities and create unique places within their park settings. Like the Duke Park shelter, the Ross Shelter’s timber columns rest on stone masonry foundations and support a simple gable roof. Like a forest canopy, the wood columns and wood ceiling form a low, protective canopy. The effect can be imagined as a small forest within a larger forest clearing. Because it is accessed from a forest path, the Ross Shelter can be considered a destination place—a particular place you go to have a picnic in a forest. While pre-fabricated picnic shelters may be off a similar path – such as the Cook Road and Piney Wood Shelters, their manufactured-for-anywhere quality resists reading the particularity of a specific place. Though the Forest Hills shelter has little in common with the adjacent Colonial Revival clubhouse, it is nonetheless a distinct park architecture among others in Forest Hills and other city parks.

In terms of seating capacity, the Piney Woods shelter can accommodate large groups of approximately 200 people. With 24 picnic tables, adjacent broad open fields and a large number of grilling stations at the perimeter, the Piney Woods is ideal for large gatherings like family reunions, league picnics, and employee appreciation events. On the other hand, parking and toilet facilities are relatively distant. When there is no large group use, the facility appears oversized and singularly purposed. The Eno River State Park picnic shelter, which has approximately half the capacity of Piney Woods, appears similarly oversized when it is not occupied for large gatherings. However, the Eno River shelter is set in the forest’s edge. Its brown columns and exposed wood trusses, and stone fireplace materials resonate with the woods of the park. The shelter is set at the edge of the forest and flat meadow, so its slab on grade appears sensible instead of a more dramatic location at the nearby cliff’s edge. The shelter’s location and form reflect its context and creates a sense of place.

Park Toilets

Toilets in parks pose a range of design considerations that are not easily reconciled. By function, toilet rooms are private, utilitarian spaces typically designed off a primary circulation route to achieve convenient, yet modest access. In public parks, which favor open, easily supervised and maintenance friendly service locations, toilet rooms can detract from visitor experience. Like dirty grills and uncleaned trash cans, they can be visual reminders that some park visitors care less than most park visitors for clean and orderly facilities. The Department of Parks and Recreation prepared a report (Going Public: An Assessment of Restroom Facilities January 2014) that documents the conditions and issues associated with toilets that are maintained by DPR. Design recommendations for minimal plan layouts of single user toilets follow DPR current standards for park toilet rooms that also meet accessibility guidelines.

C. Project Process

d. Building Code

Any new or readapted existing structure must comply with the current North Carolina Building Code.

Accessibility

The proposed pavilion must comply with the applicable sections of ICC A117.1-2009 and the North Carolina Accessibility Code. This includes minimum structural and life safety requirements, as well as accessible parking, walkways, access, seating, plumbing fixtures, and signage.

Provision for Toilet Rooms

The North Carolina Building Code defines required plumbing facilities for buildings and others structures. Plumbing requirements include accessible drinking fountains, lavatories, and water closets. The required minimum number of plumbing fixtures is based on how many people the structure serves. This is calculated on square footage areas for designated 'assembly' uses. The Durham Parks & Recreation Department has studied problems associated with providing public restrooms in parks (see appendix "Going Public"). To provide the safest, most maintainable toilet facilities, the single-user toilet room type is preferred. For operational efficiency, the plan layout and standard fixture types are also preferred. A minimum of two toilet rooms are required in any case. More are required if the assembly area exceeds 1,900 square feet. Therefore, the three proposed concepts have calculated assembly areas sized so that no more than two single-user toilet rooms are required.

The proposed conceptual layouts include very similar toilet room layouts. These are basically two rooms mirrored about a central, narrow mechanical chase room. The rooms are sized to meet ICC A117.1-2009 and the North Carolina Accessibility Code requirements. Doors swing out because experience has shown such door swing orientations are less prone to vandalizing. Because of fire and vandal resistance and structural durability, the walls of the toilet rooms will be built of concrete masonry units. The proposed pavilions include portions of exterior wood cladding or masonry veneer is recommended to harmonize with the pavilion architecture and to use the exterior walls as extensions of landscape walls that reference the palette of materials native to Duke Park and the surrounding neighborhood. In all three schemes the exterior walls of the toilet rooms serve as screen walls that support public gathering uses. Each scheme contemplates the inherent contradictions of park toilets situated in an open pavilion-- privacy and discrete access versus public accessibility and visibility, and intimate personal space versus group spaces.

C. Project Process

e. Ideas and Early Sketches

Included in this report (**Appendix S**) are a number of free hand and computer rendered conceptual sketches that documents some of the "graphic thinking" associated with exploring pavilion ideas for this report. The sketches form a series of 'what if' illustrations to capture general ideas from ongoing discussions about pavilion replacement ideas. Most were drawn conceptually, that is, without mathematical or linear precision to trigger larger ideas. The sketches contain inherent clashes and contradictions that provide images to highlight priorities and check assumptions. As the goal of this report to assess and recommend conceptual design options, the sketches represent the ongoing dialogue between park users, neighborhood activists, and City of Durham staff. Some of the watercolor and 'napkin' sketches were further tested in measured drawings with computer renderings. These were also intended to provide visual reference points rather than suggest any one fully resolved architectural solution.



C. Project Process

f. Pavilion Ideas Forum Summary

Prior to developing recommended pavilion concepts, Durham Parks and Recreation, General Services, RND Architects and Coulter Jewell Thames, Landscape Architects hosted a ‘Pavilion Ideas Forum’ at the park. This forum was intended to gather and document input from neighbors and the general public regarding the possibility of replacing the bathhouse structure with a pavilion type structure. The 2009 Duke Park Bathhouse Assessment Report summarized basic conditions of the bathhouse and the associated costs and other considerations for a possible conversion of the bathhouse to an interior conditioned community center. Therefore, the focus of Pavilion Ideas Forum was to gather more information about “what if” a pavilion structure and related landscaping were placed in the approximate footprint of the existing bathhouse. The intent of the forum was to gather and document answers to the basic questions: ‘what would the community like to see in this location?’ and ‘how would a pavilion be used?’



The forum was held on Wednesday, June 25, 2015 from 5:00 pm to 7:00 pm at the 1930’s era picnic shelter in Duke Park. The weather was fair and pleasant. The format of the forum was informal. Eighty two images were mounted on four 4x8 plywood sheets temporarily suspended from the shelter’s beams for ease of viewing inside and outside of the picnic shelter. Inside the shelter, a written survey questionnaire, a notebook with information about the site and previous studies, craft paper, post-it notes, color dots, pens and markers were provided on the

shelter’s picnic table. Attendees were encouraged to vote using adhesive backed dots alongside the color images and to write notes using the post-it notes or 8 ½” x 11” survey sheets located on the shelter’s picnic table. Directors and staff from Durham General Services, Department of Parks and Recreation, and designers and principals from RND Architects and Coulter Jewell Thames were on hand to answer questions and discuss pavilion ideas, the site and park history.

Questionnaire and Comment Summary Notes

Eleven questionnaire forms were completed and returned. Approximately half of the responses indicated frequent visits to Duke Park --several times a week--most saying they walked to the site and some coming by car. The respondents cited group gathering, parties, picnics, relaxing, public events, and performance and theater as the most supported uses. Walking, dog-walking, educational classes, and Neighborhood

Association meeting space were also noted as desired uses. In order of site concerns, top ranked were trash/litter control and toilet rooms. Next ranked were interior and exterior lighting and site lighting. Third ranked were security, benches/tables, and accessibility, and lowest ranked were drinking fountains, gardens, walking paths and public art. Other written responses included opposing desires to convert the building to a “conditioned space” and to “tear it down.”

A highly documented concern about a new pavilion was parking and trash pickup. Next was toilet room cleanliness, then loitering, safety and security, followed by crowding, noise, graffiti and vandalism. Of least concern was water and lighting. Respondents noted among other concerns: “trash all over Knox Street after events or rentals,” and “too many cars and busses parked on Knox Street.”

Survey question six included a table of importance regarding possible amenities. Respondents prompted to select a number from one to five. Five indicated most important, and one indicated least important. From totals of uses rated 3, 4, 5, the most important amenities are benches, drinking fountains, and outdoor grilles. Next respondents selected meeting space and toilet rooms; then picnic tables, and bike racks. Dog/pet water had equal totals of important and not important. Public art, outdoor game board, outdoor classroom were deemed least important in this table of responses. Respondents added the following comments about amenities: “fireplace-not at very end,” skylights,” metal roof,” “covered area and terrace for performances would require electricity for events, could have (electrical outlets) in locked storage closet, would have to rent pavilion to get electricity,” and “trees are very important.” Five responses included “Beaver Queen Pageant.”

Further comments (see appendix) conveyed general sentiments ranged from honoring the existing history of the bathhouse and site and making the pavilion more than a typical picnic shelter to a couple of comments suggesting there be no bathhouse or pavilion at all on this site. Overall, however, the responses indicated interest in a structure that provides for a variety of purposes.

Presentation Board Summary Notes

Four sheets of plywood were suspended from the shelter’s beams. Inside the shelter, each sheet contained a question surrounded by related color photographs. An area for color dots and post-it note comments provided a place to record responses to the visual prompts. Attendees were given dots and informed to place them to indicate their preference among the visuals presented and comment if something they would like to see was not represented. The Appendix PIF section includes documentation of the images presented, a written description of the photograph, and summary of the results. This information is also available on Durham Parks and Recreation website.

Pavilion Ideas Forum – Summary of Board #1:
What would you like the pavilion to look like on the outside?

EXTERIOR

Of the eighteen images presented, eleven received no votes. Of the seven receiving votes, six included images drawn from local precedents. Generally, the characteristics of the images receiving the most votes included a traditional style park-architecture of exposed, painted timber frame and stone masonry construction with open, airy plan layout and sloped metal roofs. Those images receiving no votes were of a modern or contemporary style, had flat or cantilevered roofs, were formal (painted white) or decorated (having some degree of expressive or relatively ornate details). Also, not preferred in this set of images were generic picnic shelters constructed of painted metal tubes. Post-it notes were placed next to two images in this set. On the image of the Ross Shelter, the note read “would like to preserve existing profile insofar as possible.” Alongside the image of a green-roofed pavilion with spectators watching a performance, the note read “stage toward meadow.”

Pavilion Ideas Forum – Summary of Board #2:
What would you like the pavilion to look like on the inside?

INTERIOR

Of the seventeen images presented, eight received no votes. Of the nine receiving votes, six included images drawn from local precedents. Four images received post-it note comments. The interior view of the Eno River State Park shelter note read “exposed beams-yes; set, numerous tables –no.” The interior view of a wood ceiling structure with a sky light center about a masonry fireplace read “central fireplace.” The interior view of a metal tube framed picnic shelter with wood ceiling read “high ceilings, moveable picnic tables, fireplace in center, one end partially closed, side facing meadow, and open for performances.” Lastly, the note alongside the interior view of the Duke Park picnic shelter read “harmony with existing shelter – good.”

Pavilion Ideas Forum – Summary of Board #3:
How would you like to use the pavilion?

USE

Of the nineteen images presented, seven received no votes. Of the twelve images receiving votes, thirty-one votes were cast for images depicting performances. Next, eight votes were cast for images depicting group gatherings with picnic tables. Five votes were cast for an image depicting yoga or meditation in the pavilion. Four votes were cast for a screen or display area inside the pavilion and for images depicting dancing. A post-it note included “open floor for dancing and parties.” Other uses receiving votes included images depicting Beaver Queen Pageant activities, people playing chess, community activists gathering, and a wedding reception image.

Pavilion Ideas Forum – Summary of Board #4:
What materials and details would you like to see in the pavilion?

MATERIALS & DETAILS

Of the eighteen images presented, five received no votes. Of the thirteen images receiving votes, ten were cast for an image depicting a beaver weather vane. Five votes were cast for an image depicting a Craftsman style porch with hipped, slate roof supported by paired, painted wood columns on a rustic stone foundation. Images receiving four votes each depict metal roofing, stone masonry walls, timber wood framing with simple (unornamented) painted metal connectors. Wood siding images, including unpainted or weathered clapboard and cedar shake, received two votes each. Receiving one vote each were an image depicting a dry masonry landscape wall in a forest setting, a cupola image, and a picnic shelter supported by a simple painted wood post on a masonry veneer support with a stone cap. Next to an image of a yellow-sided building with a grey 5-V metal roof, a post-it note was placed, “skylights.”



C. Concepts: Design

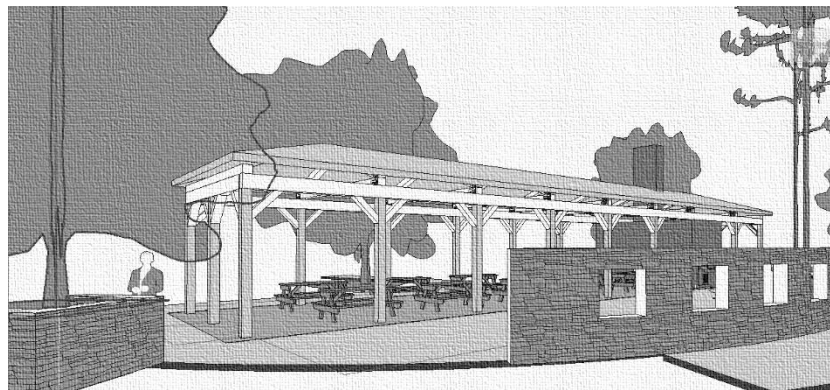
a. Overview of Conceptual Designs

Based on our understanding of the site and input from the neighborhood and the City, the design team prepared three conceptual designs for a new pavilion at Duke Park. Each concept is located within the footprint of the existing bathhouse structure and, in varying ways, balance the functional requirements of a picnic shelter within the physical and historical context of the Duke Park Bathhouse.

All three concepts include a covered gathering area with an assembly use area less than 1900 square feet. Each concept includes two single user toilet rooms, a drinking fountain, a grill area, and a 'stage-like' area oriented to the east facing the lawn.

Pavilion vs. Picnic shelter

In architecture, a pavilion is a free-standing structure sited from a main residence whose architecture make it an object of pleasure. A pavilion built to take advantage of a view is a *gazebo*. Ornamented or otherwise characterful structures, typically for seasonal use and unconditioned, which serve the dressing, showering, and temporary clothes storage for a swimming pool, are considered bathhouse-pavilions. More than a place to meet functional needs the bathhouse-pavilion building's size and scale in relation to a pool, its deck, and the surrounding terracing make for a key element in a landscape or park architecture.



D. Concepts: Materials and Form

b. Materials and Form

The building materials for the new Duke Park Pavilion should ideally reflect the context of the park, the memory of the bathhouse, and the desires of the neighborhood, as well as being durable and easily maintained. The recommended materials listed below received positive comments from the Design Ideas Forum and are typical of the precedent pavilions we studied.

Foundation

- Cast in place concrete slab-on-grade with designed control joints
- Integral colored concrete to obscure staining patterns
- Stamped concrete "pavers" - terracing outside of shelter

Structural Framing Columns/Posts

- Timber on masonry base
- Timber to concrete slab
- Timber structural detailing
- Exposed or concealed metal connectors and fasteners

Roof Framing System

- Exposed timber framed or concealed economy trusses with wood ceiling
- Expressed or ornamental metal connectors and fasteners

Roof Materials

- Metal – 5V galvanized or Standing Seam
- Asphalt Shingle – Architectural Grade

Exterior Walls (and exterior screen walls)

- Stone veneer over Concrete Masonry Units
- Re-used wood clapboard from bathhouse
- Combinations of the above

Doors

- Galvanized steel doors and frames

Low or seat walls

- Stone veneer with pre-cast concrete caps
- Brick veneer with pre-cast concrete caps

D. Concepts: Probable Costs

c. Opinion of Probable Project Cost

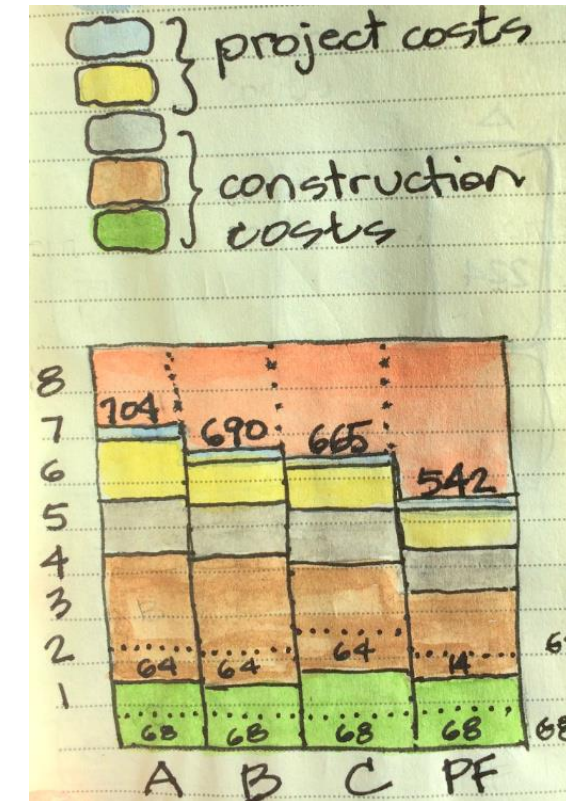
The 2009 Duke Park Bathhouse Assessment Report provided estimated project costs of \$983,000 to reconstruct the existing 2,840 square foot bathhouse for use as a community center and \$821,000 to replace the bathhouse with a new 2,840 square foot community center. The purpose of these estimates was to compare the cost of reconstructing an existing building with the cost of constructing a new building. These estimates included no site improvements, which would be necessary for that project.

The Opinion of Probable Project Cost for the three design concepts illustrated in this report include an estimate of the probable construction and design costs, plus Owner related cost for review fees, testing, furniture, furnishings, equipment, telephone and building commissioning. The estimate includes both building and site improvements. Also included is two years of cost escalation based on estimated 2 % annual project cost increase.

The three conceptual designs attempt to capture the ideas and spirit of what community members indicated was important to them and their sense of the neighborhood and the park. Of course, if the project were to receive funding and move forward, a more involved design process to seek additional park user comments would be undertaken to arrive at one specific design. It is clear, however, that a project of this cost magnitude would have to be included in the City's Capital Improvement Program and be ranked in priority with all other construction projects across the City.

As mentioned in the Executive Summary, an estimate of costs associated with a pre-fabricated picnic shelter and toilet building was prepared strictly for cost comparison purposes. A conceptual site plan locating disparate structures was not part of this feasibility study, because these insufficiently address the public preferences for the site. Thus, the "pre-fabricated" option is not included as an equal to a "pavilion" concept, but is simply provided to illustrate relative cost difference.

In any case, a project that replaces the current bathhouse will require common construction costs for site and building preparation as indicated in the lower numbers of the conceptual graphic.



Preliminary Opinion of Probable Project CostConcept A

Project:	Duke Park Pavilion Concept A			
	City of Durham	Durham, North Carolina		
RND#:	1329		Date: 10/27/14	
		Covered area	2440 SF	
		Uncovered area	1900 SF	

	#	DESCRIPTION	COST	UNIT	QUANTITY	TOTALS
Site Improvements						
	1	Site prep / Tree removal	\$7.50	/sf	4340	\$32,550
	2	Accessible Parking and Drives	\$15,000.00	/space	2	\$30,000
	3	Accessible walkways and ramps	\$40.00	/lf	200	\$8,000
	4	Site Utilities	\$20,000.00	/allowance	1	\$20,000
	5	Landscaping repairs	\$10,000.00	/allowance	1	\$10,000
	6	Concrete terraces	\$10.00	/sf	1900	\$19,000
	7	Masonry seating walls / retaining walls	\$200.00	/lf	140	\$28,000
	8	Site Lighting	\$7,500.00	each	1	\$7,500
Subtotal Subcontractor Cost- Site Improvements Pavilion						\$155,050
	9	Deconstruction/Demolition	\$5.00	/sf	2840	\$14,200
	10	Slab on grade foundation system	\$12.50	/sf	2440	\$30,500
	11	Timber framed structure	\$65.00	/sf	2440	\$158,600
	12	Metal roof and gutters	\$10.00	/sf	2440	\$24,400
	13	Masonry walls (Toilet Rooms)	\$80.00	/lf	80	\$6,400
	14	Cupola	\$2,500.00	each	2	\$5,000
	15	Doors and Hardware	\$1,200.00	each	3	\$3,600
	16	Toilet room finishes and accessories	\$4,000.00	each	2	\$8,000
Plumbing, Mechanical and Electrical						
	17	Plumbing System (2 toilet rooms)	\$3,500.00	/fixture	5	\$17,500
	18	Electrical Power and Lighting	\$20,000.00	/lump sum	1	\$20,000
Subtotal Subcontractor Cost- Pavilion						\$288,200
Subtotal Subcontractor cost						\$443,250
General Contractor Costs						
		1.5% Insurance				\$6,649
		2.0% Bonding				\$8,865
		10.0% General Conditions and Requirements				\$44,325
		15.0% Overhead and Profit				\$66,488
Total Opinion of Probable Construction Cost						\$569,576
Fees and related costs						
		10.0% Design Fee- Basic Services (Arch, Civil, Structural, MEP)				\$56,958
		Pre-Design Services (Site Planning, Survey)				\$15,000
		2.0% Owner related costs (GeoTech, Application Fees, FF&E)				\$11,392
		5.0% Project Contingency				\$28,479
Subtotal						\$681,404
		4.0% Construction Cost Escalation (2 years at 2.0% per year)				\$22,783
Total Opinion of Probable Project Cost						\$ 704,187

		Say	\$ 704,000
		Construction Cost per Covered Square Foot	\$233
		Project Cost per Covered Square Foot	\$289

This "Opinion of Probable Project Cost" is based on our professional experience. However, we do not guarantee that fees, proposals, bids, or construction cost will not vary from this opinion.

Preliminary Opinion of Probable Project CostConcept B

Project:	Duke Park Pavilion Concept B			
	City of Durham	Durham, North Carolina		
RND#:	1329		Date: 10/24/14	
		Covered area	2350 SF	
		Uncovered area	2000 SF	

	#	DESCRIPTION	COST	UNIT	QUANTITY	TOTALS
Site Improvements						
	1	Site prep / Tree removal	\$7.50	/sf	4350	\$32,625
	2	Accessible Parking and Drives	\$15,000.00	/space	2	\$30,000
	3	Accessible walkways and ramps	\$40.00	/lf	340	\$13,600
	4	Site Utilities	\$20,000.00	/allowance	1	\$20,000
	5	Landscaping repairs	\$10,000.00	/allowance	1	\$10,000
	6	Concrete terraces	\$10.00	/sf	2000	\$20,000
	7	Masonry seating walls / retaining walls	\$200.00	/lf	80	\$16,000
	8	Site Lighting	\$7,500.00	each	1	\$7,500
Subtotal Subcontractor Cost- Site Improvements Pavilion						\$149,725
	9	Deconstruction/Demolition	\$5.00	/sf	2840	\$14,200
	10	Slab on grade foundation system	\$12.50	/sf	2350	\$29,375
	11	Timber framed structure	\$65.00	/sf	2350	\$152,750
	12	Metal roof and gutters	\$10.00	/sf	2350	\$23,500
	13	Masonry walls (Toilet Rooms)	\$80.00	/lf	92	\$7,360
	14	Cupola	\$7,500.00	each	1	\$7,500
	15	Doors and Hardware	\$1,200.00	each	3	\$3,600
	16	Toilet room finishes and accessories	\$4,000.00	each	2	\$8,000
Plumbing, Mechanical and Electrical						
	17	Plumbing System (2 toilet rooms)	\$3,500.00	/fixture	5	\$17,500
	18	Electrical Power and Lighting	\$20,000.00	/lump sum	1	\$20,000
Subtotal Subcontractor Cost- Pavilion						\$283,785
Subtotal Subcontractor cost						\$433,510
General Contractor Costs						
		1.5% Insurance				\$6,503
		2.0% Bonding				\$8,670
		10.0% General Conditions and Requirements				\$43,351
		15.0% Overhead and Profit				\$65,027
Total Opinion of Probable Construction Cost						\$557,060
Fees and related costs						
		10.0% Design Fee- Basic Services (Arch, Civil, Structural, MEP)				\$55,706
		Pre-Design Services (Site Planning, Survey)				\$15,000
		2.0% Owner related costs (GeoTech, Application Fees, FF&E)				\$11,141
		5.0% Project Contingency				\$27,853
Subtotal						\$666,761
		4.0% Construction Cost Escalation (2 years at 2.0% per year)				\$22,282
Total Opinion of Probable Project Cost						\$ 689,043

		Say	\$ 689,000
		Construction Cost per Covered Square Foot	\$237
		Project Cost per Covered Square Foot	\$293

This "Opinion of Probable Project Cost" is based on our professional experience. However, we do not guarantee that fees, proposals, bids, or construction cost will not vary from this opinion.

Preliminary Opinion of Probable Project Cost Concept C

Project:	Duke Park Pavilion Concept C		
	City of Durham	Durham, North Carolina	
RND#:	1329		Date: 10/27/14
	Covered area	1800 SF	
	Uncovered area	2800 SF	

Total Opinion of Probable Construction Cost

#	DESCRIPTION	COST	UNIT	QUANTITY	TOTALS
Site Improvements					
1	Site prep / Tree removal	\$7.50	/sf	4600	\$34,500
2	Accessible Parking and Drives	\$15,000.00	/space	2	\$30,000
3	Accessible walkways and ramps	\$40.00	/lf	340	\$13,600
4	Site Utilities	\$20,000.00	/allowance	1	\$20,000
5	Landscaping repairs	\$10,000.00	/allowance	1	\$10,000
6	Concrete terraces	\$10.00	/sf	2800	\$28,000
7	Masonry seating walls / retaining walls	\$250.00	/lf	160	\$40,000
8	Site Lighting	\$7,500.00	each	1	\$7,500
Subtotal Subcontractor Cost- Site Improvements					\$183,600
Pavilion					
9	Deconstruction/Demolition	\$5.00	/sf	2840	\$14,200
10	Slab on grade foundation system	\$12.50	/sf	1800	\$22,500
11	Timber framed structure	\$65.00	/sf	1800	\$117,000
12	Metal roof and gutters	\$10.00	/sf	1800	\$18,000
13	Masonry walls (Toilet Rooms)	\$80.00	/lf	80	\$6,400
14	Masonry "Chimney"	\$7,500.00	/lump sum	1	\$7,500
15	Doors and Hardware	\$1,200.00	each	3	\$3,600
16	Toilet room finishes and accessories	\$4,000.00	each	2	\$8,000
Plumbing, Mechanical and Electrical					
17	Plumbing System (2 toilet rooms)	\$3,500.00	/fixture	5	\$17,500
18	Electrical Power and Lighting	\$20,000.00	/lump sum	1	\$20,000
Subtotal Subcontractor Cost- Pavilion					\$234,700
Subtotal Subcontractor cost					\$418,300
General Contractor Costs					
1.5%	Insurance				\$6,275
2.0%	Bonding				\$8,366
10.0%	General Conditions and Requirements				\$41,830
15.0%	Overhead and Profit				\$62,745
Total Opinion of Probable Construction Cost					\$537,516
Fees and related costs					
10.0%	Design Fee- Basic Services (Arch, Civil, Structural, MEP)				\$53,752
	Pre-Design Services (Site Planning, Survey)				\$15,000
2.0%	Owner related costs (GeoTech, Application Fees, FF&E)				\$10,750
5.0%	Project Contingency				\$26,876
Subtotal					\$643,893
4.0%	Construction Cost Escalation (2 years at 2.0% per year)				\$21,501
Total Opinion of Probable Project Cost					\$ 665,394

Say \$ 665,000

Construction Cost per Covered Square Foot \$299

Project Cost per Covered Square Foot \$370

This "Opinion of Probable Project Cost" is based on our professional experience. However, we do not guarantee that fees, proposals, bids, or construction cost will not vary from this opinion.

Preliminary Opinion of Probable Project Cost Concept PF

Project:	Duke Park Pavilion Concept PF		Pre-Engineered structures
	City of Durham	Durham, North Carolina	
RND#:	1329		Date: 10/24/14
	Covered Shelter area	1440 SF	30x48
	Toilet Room Building	120 SF	10x12
	Uncovered area	1900 SF	

Total Opinion of Probable Construction Cost

#	DESCRIPTION	COST	UNIT	QUANTITY	TOTALS
Site Improvements					
1	Site prep / Tree removal	\$7.50	/sf	3460	\$25,950
2	Accessible Parking and Drives	\$15,000.00	/space	2	\$30,000
3	Accessible walkways and ramps	\$40.00	/lf	200	\$8,000
4	Site Utilities	\$20,000.00	/allowance	1	\$20,000
5	Landscaping repairs	\$10,000.00	/allowance	1	\$10,000
6	Concrete terraces	\$10.00	/sf	1900	\$19,000
7	Masonry seating walls / retaining walls	\$200.00	/lf	100	\$20,000
8	Site Lighting	\$7,500.00	each	1	\$7,500
Subtotal Subcontractor Cost- Site Improvements					\$140,450
Pavilion					
9	Deconstruction/Demolition	\$5.00	/sf	2840	\$14,200
10	Slab on grade foundation system	\$12.50	/sf	1560	\$19,500
11	Pre-Engineered Timber Framed Shelter- Materials Kit	\$40,000.00	each	1	\$40,000
12	Shelter Structure Assembly/Installation	\$40,000.00	each	1	\$40,000
13	Pre-Engineered Toilet Structure	\$80,000.00	each	1	\$80,000
Plumbing, Mechanical and Electrical					
14	Plumbing System	included			
15	Electrical Power and Lighting	\$5,000.00	/lump sum	1	\$5,000
Subtotal Subcontractor Cost- Pavilion					\$198,700
Subtotal Subcontractor cost					\$339,150
General Contractor Costs					
1.5%	Insurance				\$5,087
2.0%	Bonding				\$6,783
10.0%	General Conditions and Requirements				\$33,915
15.0%	Overhead and Profit				\$50,873
Total Opinion of Probable Construction Cost					\$435,808
Fees and related costs					
10.0%	Design Fee- Basic Services (Arch, Civil, Structural, MEP)				\$43,581
	Pre-Design Services (Site Planning, Survey)				\$15,000
2.0%	Owner related costs (GeoTech, Application Fees, FF&E)				\$8,716
5.0%	Project Contingency				\$21,790
Subtotal					\$524,895
4.0%	Construction Cost Escalation (2 years at 2.0% per year)				\$17,432
Total Opinion of Probable Project Cost					\$ 542,327

Say \$ 542,000

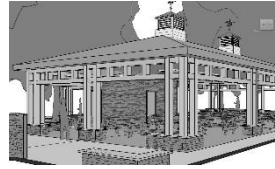
Construction Cost per Covered Square Foot \$279

Project Cost per Covered Square Foot \$348

This "Opinion of Probable Project Cost" is based on our professional experience. However, we do not guarantee that fees, proposals, bids, or construction cost will not vary from this opinion.

D. Discussion of Concepts

Concept A



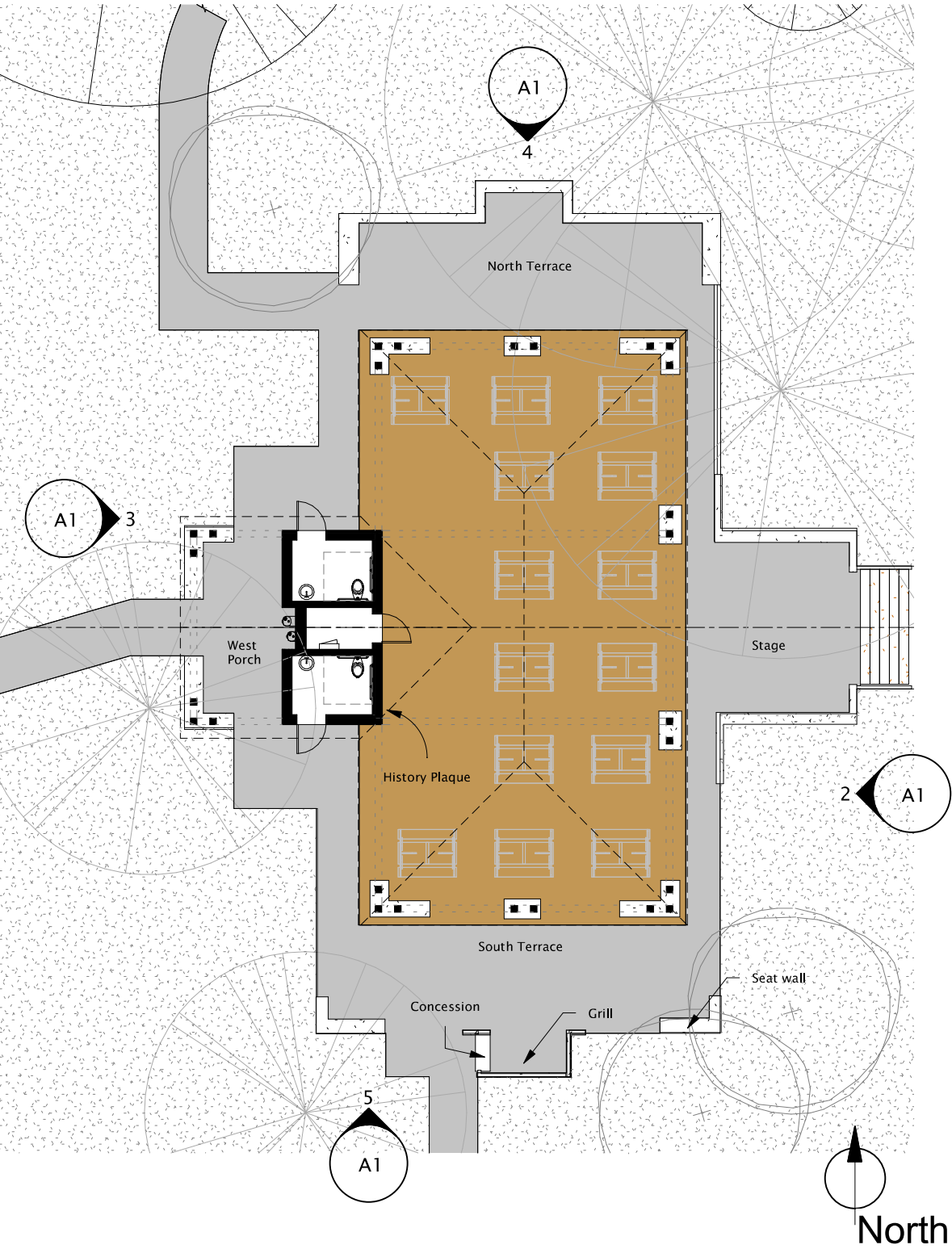
Concept A proposes a rectangular, symmetrical plan layout with a covered area of approximately 2,440 square feet and an assembly use area of approximately 1,825 square feet. In response to the request for a pavilion that is reminiscent of the existing bathhouse, Concept A depicts a hipped main roof with two

cupolas and a west facing porch. The roofs have 12" overhangs and are supported by twenty paired wood columns set on masonry piers. The columns also support lateral lattice wood bracing that add simple decoration as well as useful armature for the mounting of temporary banners or decorations.

The paved area surrounding the covered area of the pavilion mimics the original bathhouse footprint. For example, the former shower areas and toilet room "bump outs" of the bathhouse footprint are recast as terrace areas with built-in seat walls, and areas for a grill and temporary concession set up.

Through the sketch sharing process with the Department of Parks and Recreation, all three concepts have a similar single user toilet room layout. Each toilet room has minimal, yet code compliant fixture layouts. Since door swing locations impact circulation, exterior wall use potential, and privacy, each concept is slightly different, however, all three toilet room layouts use the standard shared plumbing chase arrangement typical in DPR's recent park toilet structures. In Concept A, the required high-low drinking fountain is located in an alcove on the west porch. The toilet rooms will be designated as un-sex single user toilet rooms. The exterior of the walls enclosing the toilet rooms are clad with a mix of stone or brick and some of reused wood siding salvaged from the existing bathhouse.

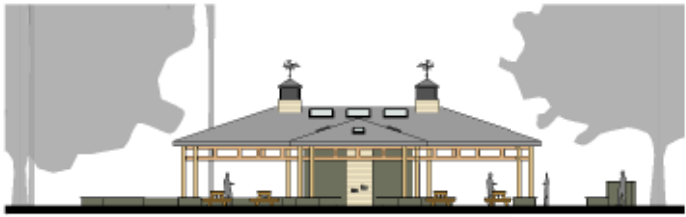
The Site Section diagram illustrates the new pavilion's height and distance in relation to the nearest private residence and in relation to the meadow and opposing hillside in the park.



1 **Concept A - Plan**
1/16" = 1'-0"



2 **Concept A East Elevation**
1/32" = 1'-0"



3 **Concept A West Elevation**
1/32" = 1'-0"



4 **Concept A North Elevation**
1/32" = 1'-0"



5 **Concept A South Elevation**
1/32" = 1'-0"



6 **Site Section**
1" = 60'-0"

Duke Park Pavilion Report

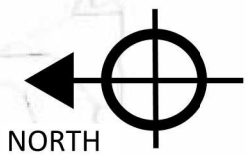
A1 Concept A Plan
Scale: As indicated
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A



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Schematic Rendering

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Duke Park Pavilion Report

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Schematic Rendering

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Concept B



Concept B proposes a rectangular, symmetrical plan layout with a covered area of approximately 2,350 square feet and an assembly use area of approximately 1,825 square feet. Similar to Concept A, Concept B is reminiscent in form to the existing bathhouse, with a hipped main roof and a west facing porch.

The twin cupolas are replaced with a single large cupola or light monitor permitting daylight to enter the center of the gathering space. The roofs have 18" overhangs and are supported by eighteen wood columns set on masonry piers. The columns do not have the horizontal bracing shown in Concept A, but does indicate a timber pergola. Such a pergola structure could define a stage area and provide an armature for the mounting of temporary banners or decorations. The partial covering the stage area creates another shade zone that differentiates it from the tree canopy cover on the north terrace, the hipped roof cover of the west porch and the relatively open "sun-terrace" on the south side of the pavilion.

As in Concept A, paved areas surrounding the covered areas of the pavilion mimic the original bathhouse footprint. The "bump outs" of the bathhouse footprint are recast as terrace areas with built-in seat walls and areas for a grill and temporary concession set up.

The toilet room doors and plumbing chase doors are accessed on the west side. The west porch area is approximately 300 square feet and is adequate in size for a small covered gathering area.

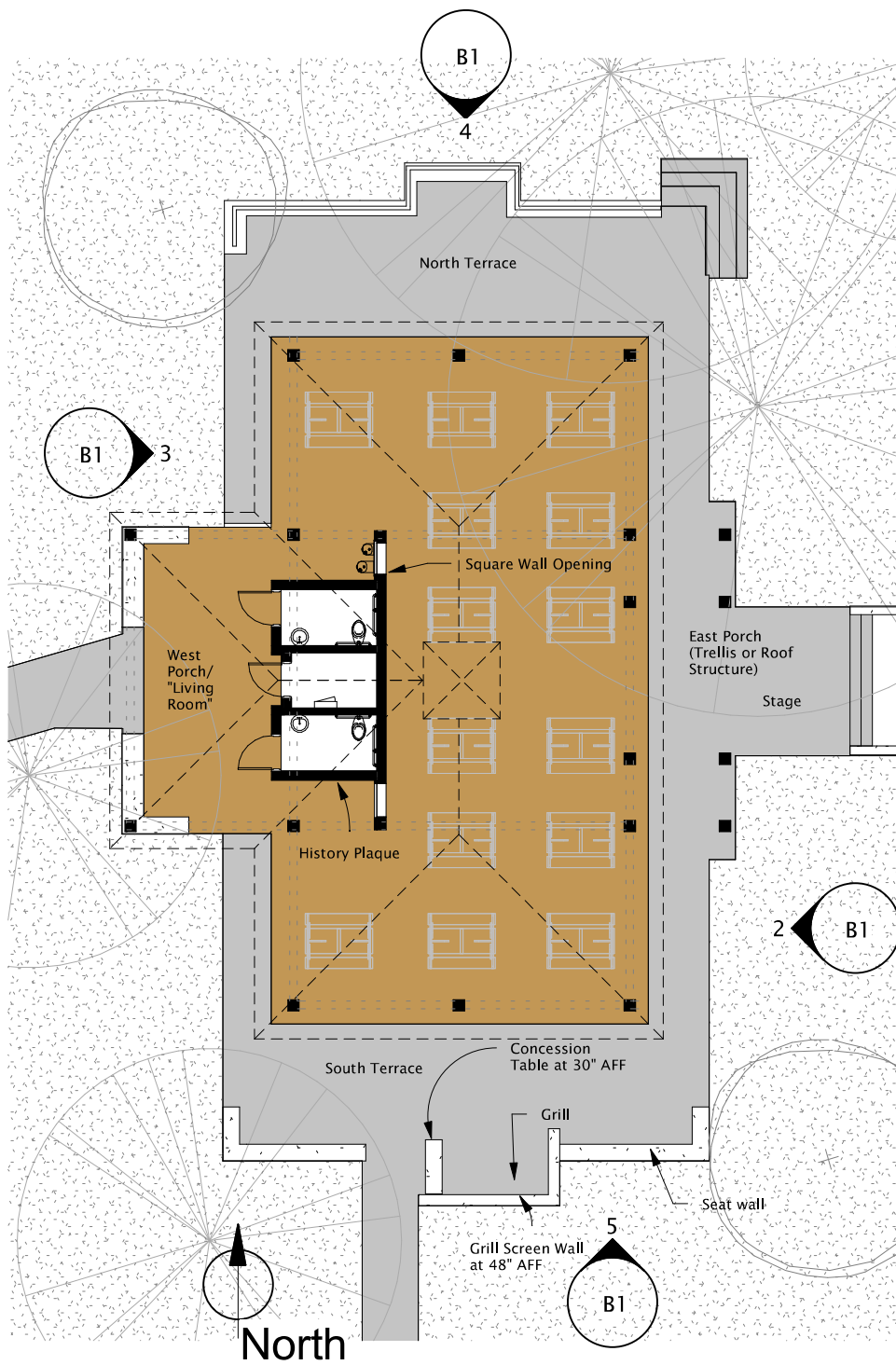
Park history plaques and neighborhood bulletin board areas are available on the exterior of the toilet rooms north and south walls. These exterior walls may be veneered with wood siding reclaimed from the bathhouse, or clad with stone or brick. The east wall of the toilets is longer than their west wall to provide a wider screen and backdrop area. These wing walls are full height but include large square openings that reference the square shaped windows/louvers of the existing bathhouse. They frame an "interior view" under the shelter to the meadow and to the neighborhood and reinforce the architectural relationship between the pavilion's public presence in a private neighborhood.

The Site Section diagram graphically illustrates the new pavilion's height (~20 feet) and distance in relation to the nearest private residence (~160 feet) and in relation to the meadow and opposing hillside in the park.

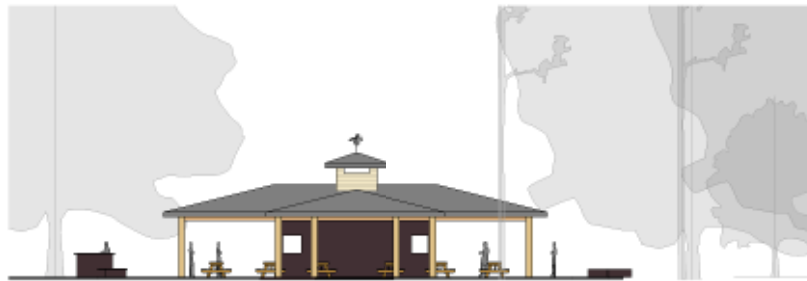
The Conceptual Site Plan illustrates upgrading of the existing ADA accessible parking spaces toward the south end of the current bathhouse location. This approach without

any extension to the Duke Park roadway implies that a pavilion is an end destination rather than a point along the way toward the park's most north extreme. All of the covered and terraced areas of the new pavilion would be accessible. This illustration also expresses new trees and plantings to complement the existing trees—all of which are to remain.

The first rendering shows a conceptual three dimensional view of the pavilion from the north terrace toward the west porch. The drawing indicates the massing of the roof forms, the toilet room, low walls and singular columnar pattern. The second rendering depicts a view east of the existing southern approach to the bathhouse. The east porch is shown with a hipped roof instead of a pergola form.



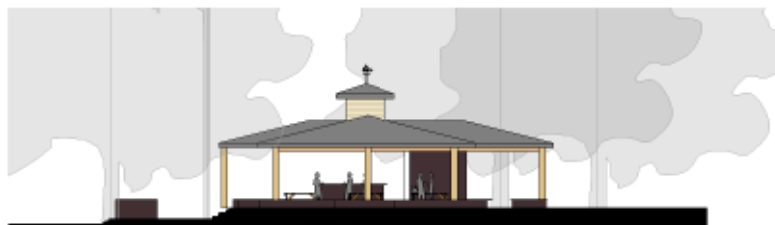
1 **Concept B - Plan Features**
1/16" = 1'-0"



2 **Concept B East Elevation**
1/32" = 1'-0"



3 **Concept B West Elevation**
1/32" = 1'-0"



4 **Concept B North Elevation**
1/32" = 1'-0"



5 **Concept B South Elevation**
1/32" = 1'-0"



6 **Section 1**
1" = 60'-0"

Duke Park

B1 CONCEPT PLAN B
Scale: As indicated
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B

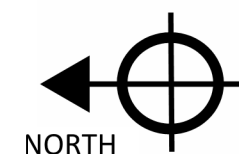


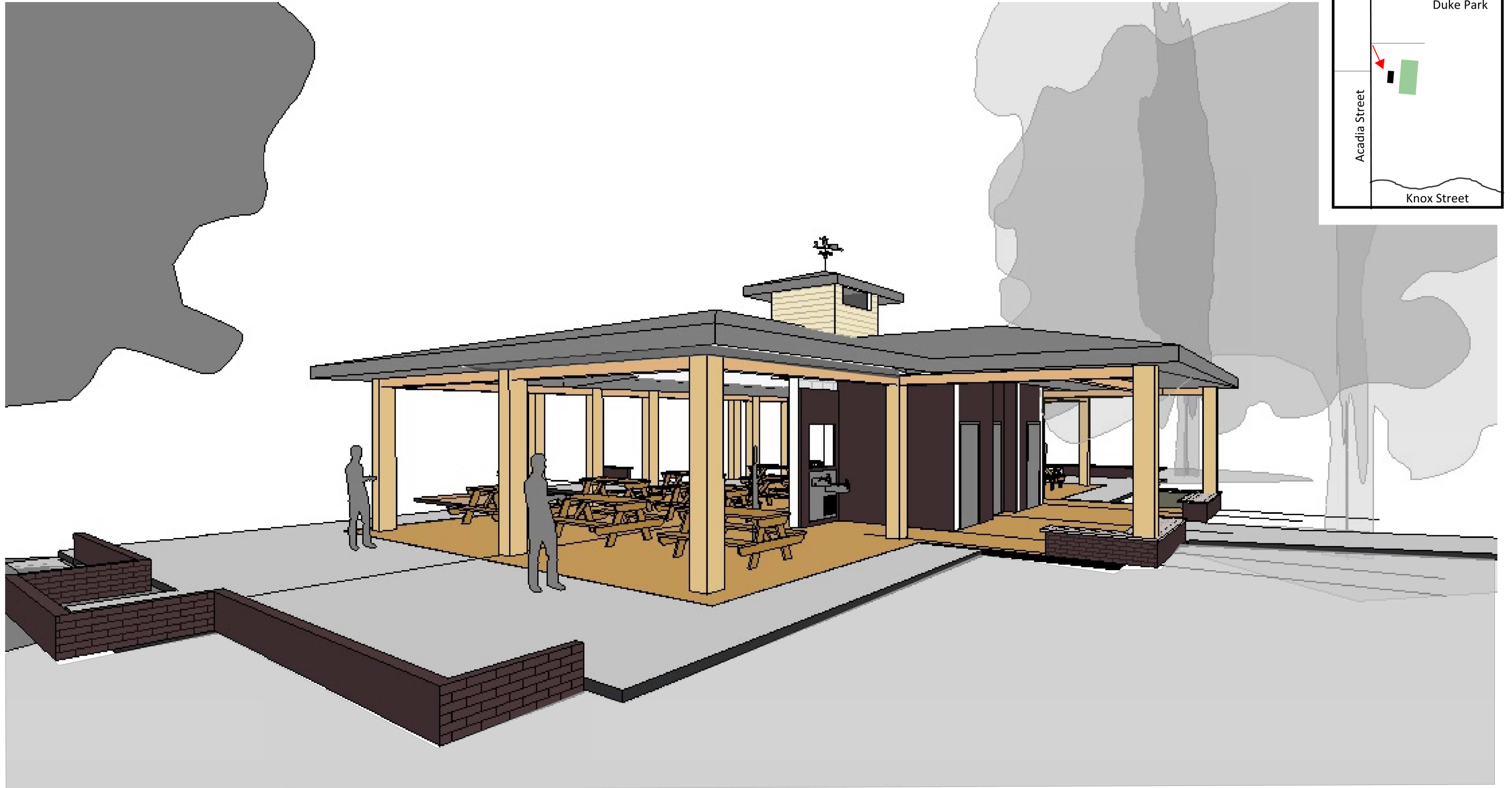
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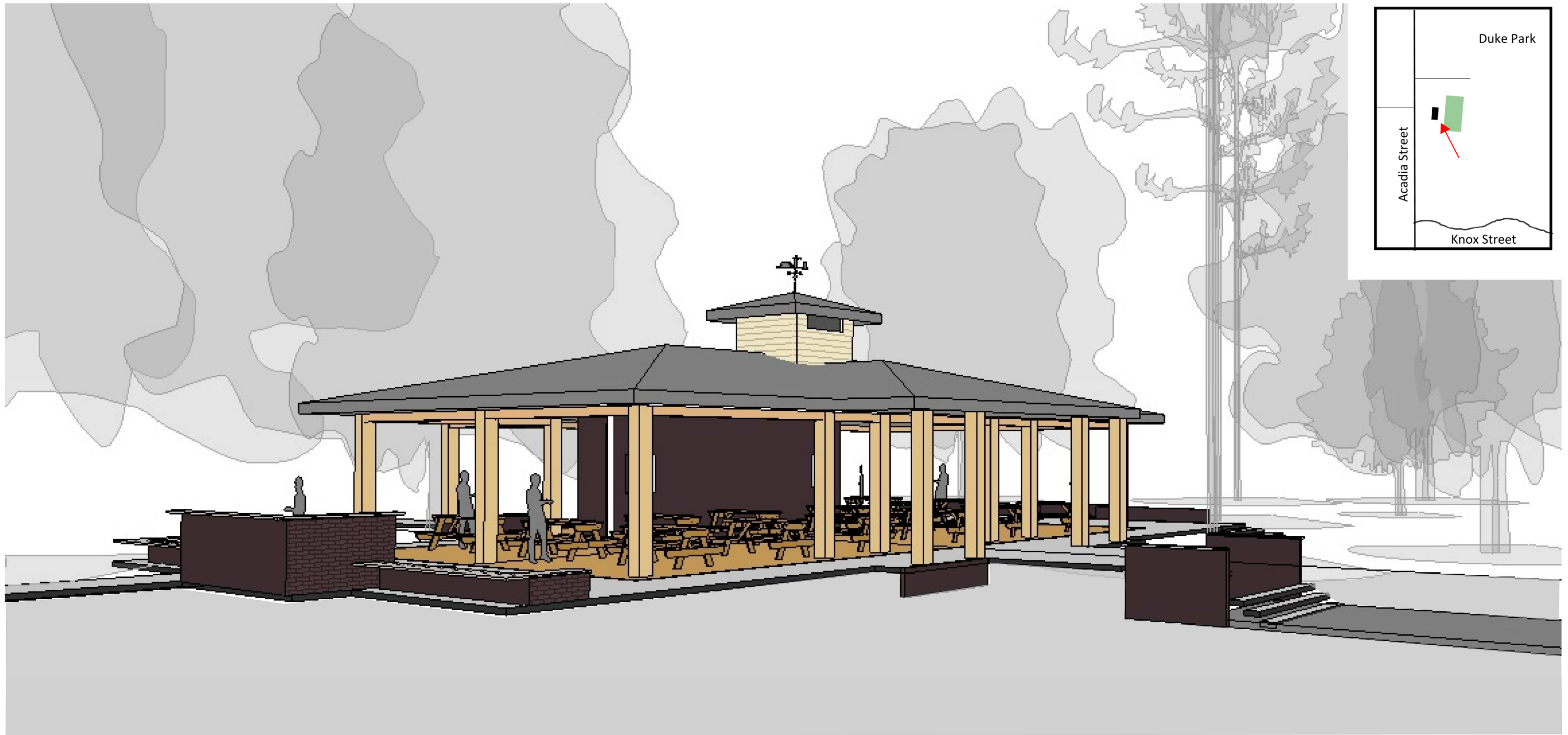
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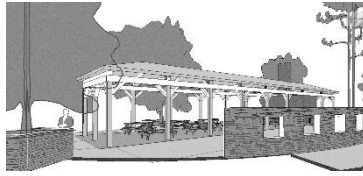
ACADIA STREET







Concept C



Concept C is a departure from the other concepts. Taking cues from early sketches and a more abstract interpretation of references to the bathhouse, the pavilion form is more of a long house set on extended paved area that gestures in views toward the south east area of the park. If the north side is quiet and shaded, the south side is active, open and inviting to park visitors that enter the park from Knox Street and playground areas of the park.

The concept proposes a rectilinear, symmetrical plan layout with a covered area of approximately 1,800 square feet and an assembly use area of approximately 1,200 square feet. Similar to the existing bathhouse, Concept C depicts a hipped main roof and painted timber columns. The form also relates to the existing Duke Park Shelter. The roof has an 18" overhangs and is supported by eighteen wood columns set on masonry piers. The longer, narrower plan layout relates to the intimate layout of the existing Duke Park picnic shelter. It is intimate, open, but is terminated on the north end by a speaker's hearth, which may be also be a destination in a processional arrangement, such as an informal commitment ceremony. It may also be set up with folding chairs for a small audience film screening on the hearth wall.

The stage area is divided by a landscape wall with large square openings. The east side of the wall may be gently sloped to create wheelchair accessible upper and lower stage areas.

The grill and temporary concession areas consist of stone walls along the curved pavement that screen and mediate spaces for a variety of uses while remaining visually open to all areas of the site. The play between high and low walls, large square openings in the free standing landscape walls and the starting and stopping of walls along a continuous curve create a rich palette of use opportunities with modest, durable, and maintenance-friendly construction materials. For example, low stone walls with concrete caps provide for seating opportunities and also create easy continuous edges to mow and weed. The openings in the taller sixty inch high stone walls frame views and provide opportunities for mounting temporary banners, flowers, and decorations.

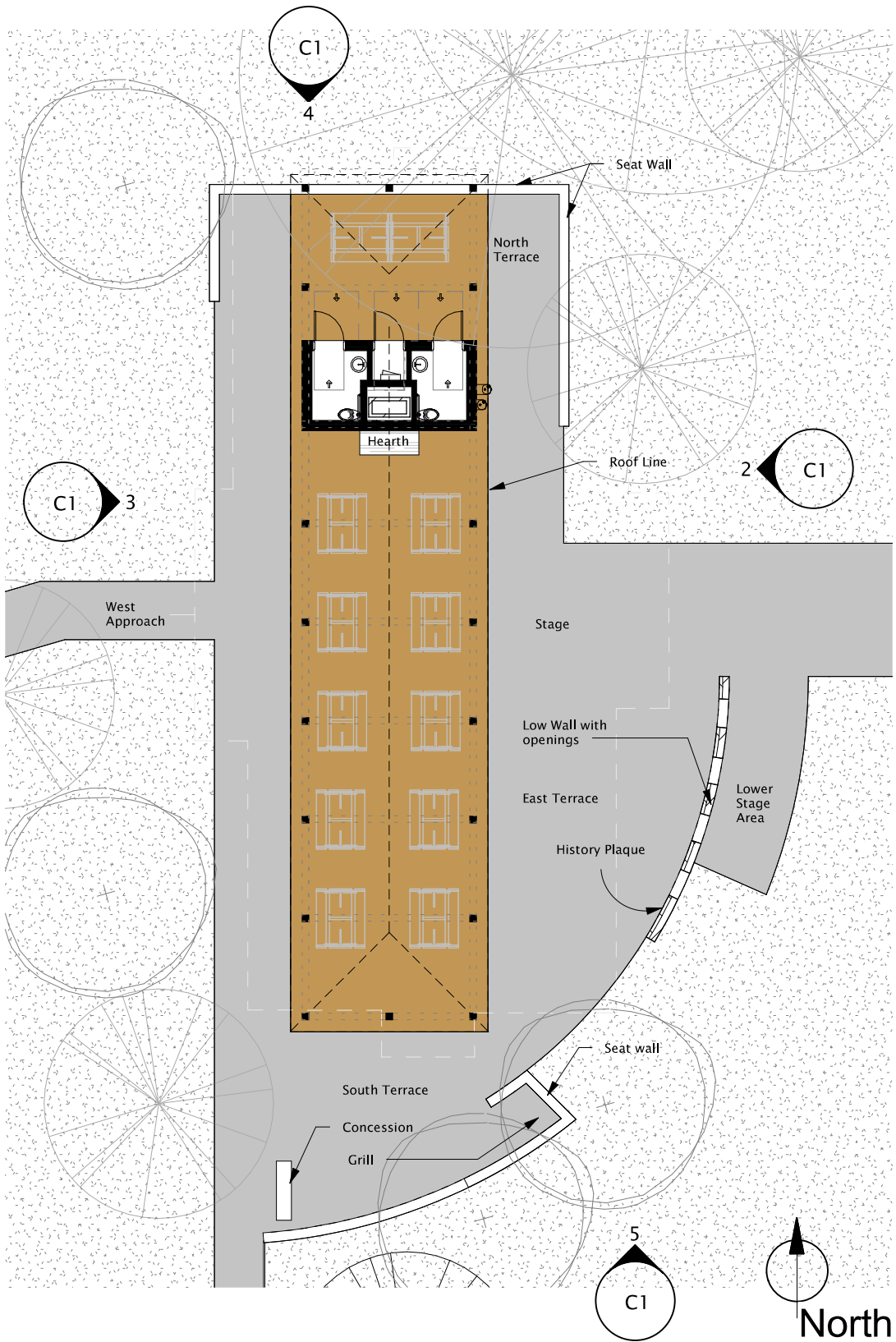
The toilet room doors and plumbing chase doors are accessed on the north side's terrace area. This covered terrace is approximately 250 square feet that can be used for intimate gatherings—a "sort of outdoor living room." Like the other two concepts, this space can be observed from the neighborhood and street side, but it can also be observed from the park side. The location of toilet rooms is always an operational concern for DPR operations and police observation because they are the more prone to vandals. With full view of this area from Acadia Street and Duke Park Drive, this

plan arrangement creates an intimate, smaller gathering area that is easily visible from the street. The neighborhood bulletin board would be located on the exterior of the toilet rooms east or west walls.

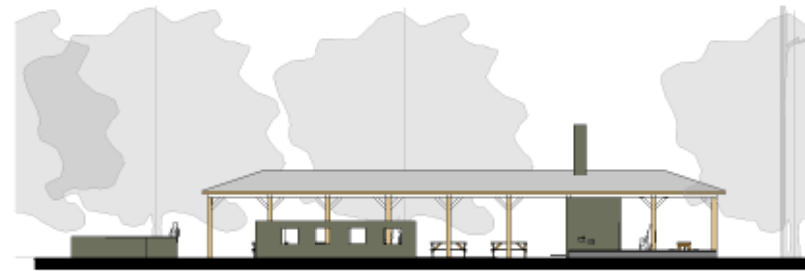
The Site Section diagram graphically illustrates the new pavilion's roof height (~15 feet) and distance in relation to the nearest private residence (~160 feet) and in relation to the meadow and opposing hillside in the park. In terms of height and massing, this pavilion is smaller than the current bathhouse. However, the form extends the length of the existing bathhouse and with its regularly spaced timber wood columns, shallow hipped roof form, and masonry chimney the form represents both residential and park architectural components.

The Conceptual Site Plan illustrates upgrading of the existing ADA accessible parking spaces toward the south end of the current bathhouse location. This approach without extension to the Duke Park roadway implies that this pavilion is an end destination rather than a point along the way toward the most north extreme end of the park. All of the terraced and covered areas of the new pavilion would be accessible. This illustration also expresses new trees and plantings to complement the existing trees- all to remain.

The first rendering depicts a view east of the existing southern approach to the bathhouse. The east stage areas is shown with the free standing stone wall with the large square openings that reference the former square openings in the bathhouse. Park history plaques would be mounted on this wall and electrical outlets would be integrated wall recesses. The bulletin board for park and neighborhood information would be located on the west exterior wall of the toilet room building. The second rendering shows a conceptual three dimensional view of the pavilion looking toward the east side of the toilet room wall.



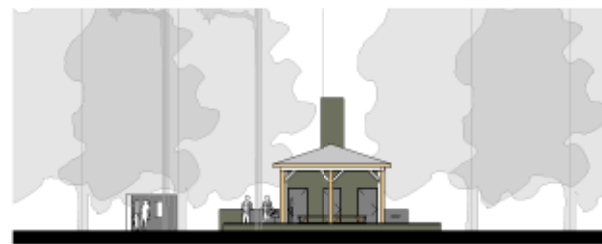
1 Concept C - Duke Park Shelter Type
1/16" = 1'-0"



2 Concept C East Elevation
1/32" = 1'-0"



3 Concept C West Elevation
1/32" = 1'-0"



4 Concept C North Elevation
1/32" = 1'-0"



5 Concept C South Elevation
1/32" = 1'-0"



6 Site Section
1" = 60'-0"

Duke Park

C1 Concept C Plan
Scale: As indicated
Project No. 1329

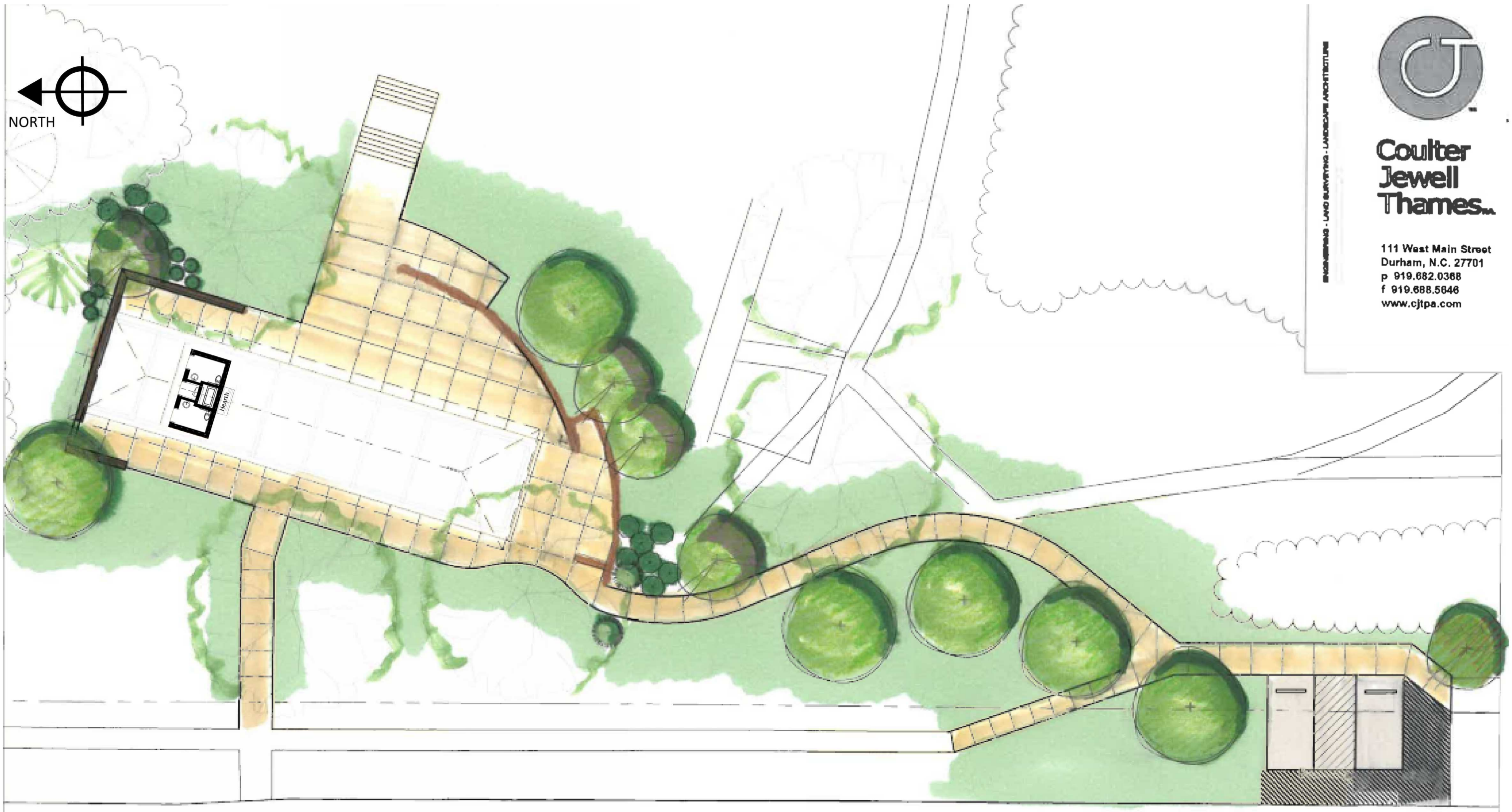
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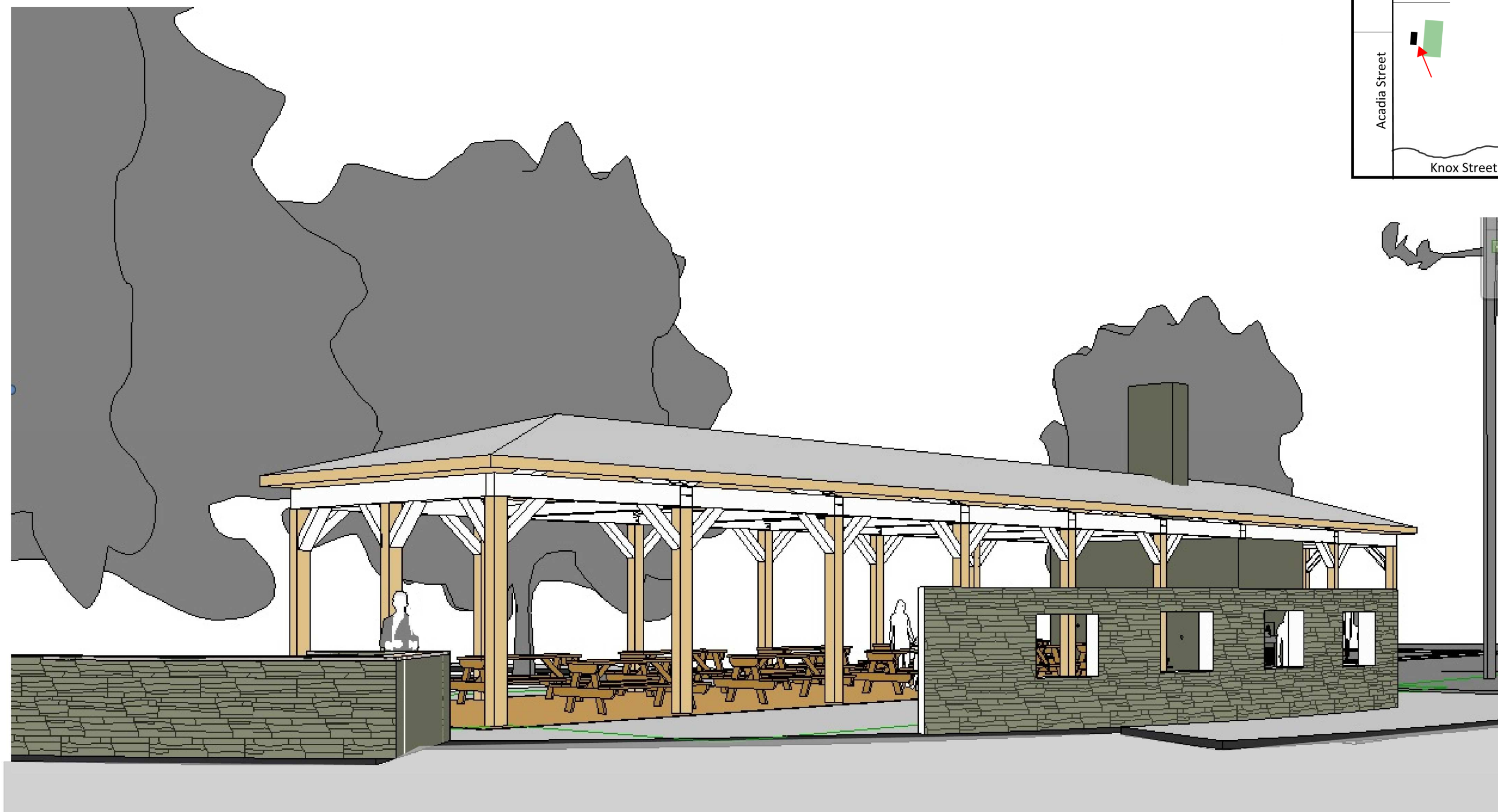
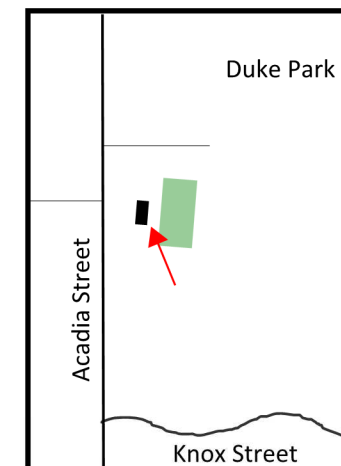
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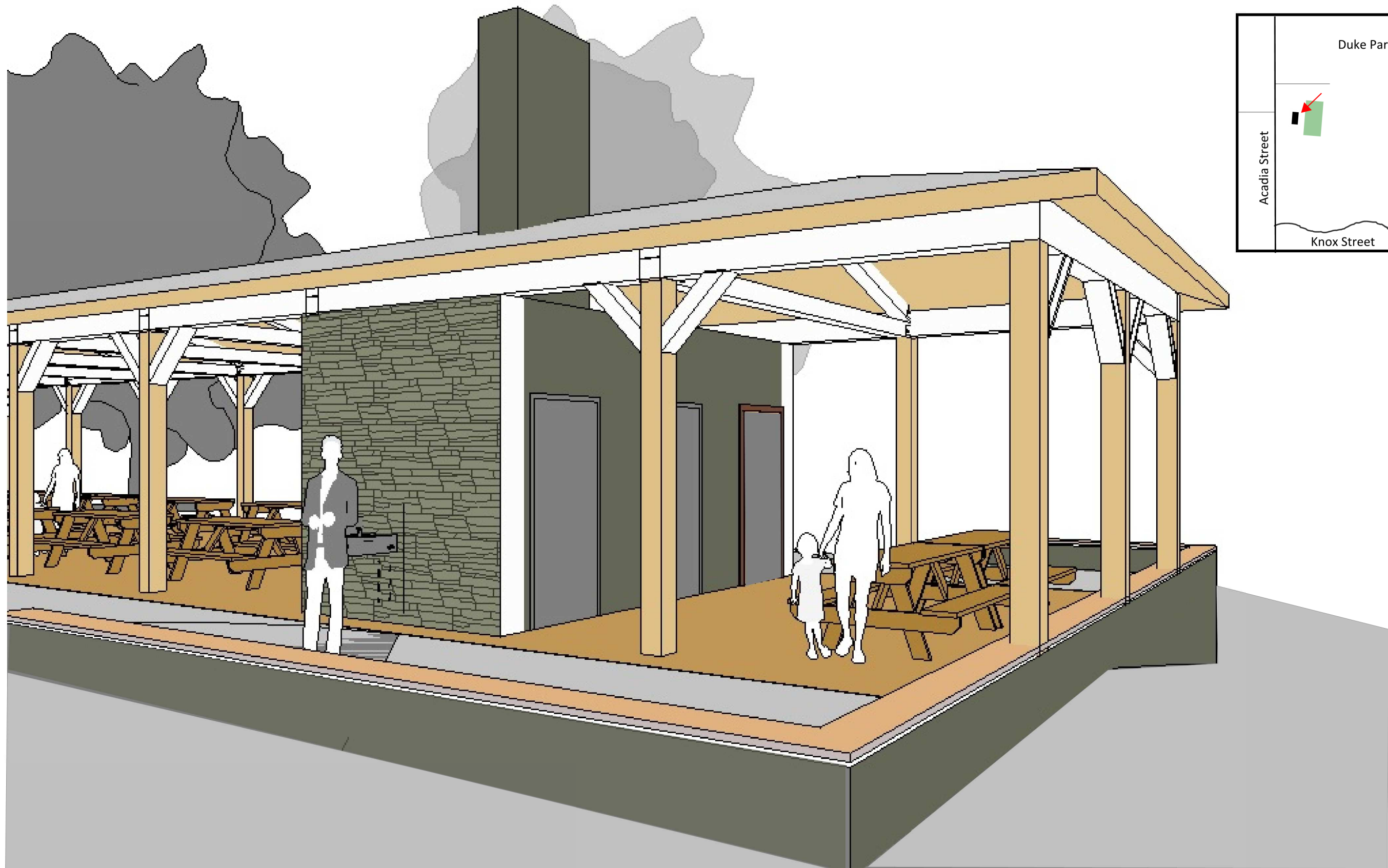
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Appendix and Process Documentation

Appendix H: History

Appendix P: Park Shelter Examples | Precedents

Appendix S: Preliminary Ideas and Design Sketches

Appendix PIF: Pavilion Ideas Forum

Appendix DP: Materials and Detail Palette

Appendix SN: Site Notes and Analysis

(Note: This Appendix sections are available on the Durham Parks and Recreation website.)